EMICAL
BRARY

Have You Arranged for Your Transportation to Miami—the Convention City?—See June Journal and Also Your R. R. Passenger Agent.

Vol. XX, No. 7 JULY, 1931

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

CONTENTS

Frontispiece and Sketch—Nicholas H. Noyes 625
Editorial:
- Bi-Centenary of Bartram's Gardens 626
- The Pharmacist's Part in Public Health Service 627
- The Department of Commerce Bureau of Foreign and Domestic Commerce 629
- The Limitation of the Manufacture of Narcotics 629
- Sixth International Congress of Military Medicine and Pharmacy 630

Scientific Section:
- Phytochemical Notes—Harwood 631
- The Use of Aluminum and Stannous Chloride in the Gutzeit Test for Arsenic—Mayrand 637
- The Ultraviolet Transmission of Liquids—Harvey 643
- Determination of Phenolphthalein in Pharmaceutical Mineral Oil Emulsions—Serrallach and Owen 648
- The Sampling of Opium—Rosengarten 650
- The Standardization of Volumetric Sulphuric Acid Solution—Mayer 651
- The Use of Barium Oxide for Alcohol Dehydration—Meredith and Christiansen 653
- Olive Oil—Fluorescence in Ultraviolet Light—Deuble and Schoetzow 655

Bibliography of Pharmaceutical Research—DuMez 657
A Method for the Quantitative Estimation of Chloroform in Chloroform Liniment—Andersen 659
Department of Business Management:
- Advertising and Selling Problems of Drug Stores—Olsen 663
- We Do Not Substitute—or Do We? 666

Making Our Own Efforts the Basis of Our Destinies—Seltzer 668
Some Pertinent Aspects of Higher Education—Kraus 670
The Department of the American Association of Colleges of Pharmacy:
- And What Is Culture?—Sturmer 677

Dr. George B. Wood—Viehoever 678
Dr. Thomas Tickell Hewson, Chairman U. S. P. Revision Committee, 1830, Washington—Richtmann 680
Dr. Eli Ives, Chairman U. S. P. Revision Committee, 1830, New York—Richtmann 681
Historical Fragments—Kremers 682
The History of National Pharmacy Week 696
Committee Reports:
- Meeting of the Committee of Revision of National Formulary—Nichols 707

Proceedings of the Local Branches 710
Conference of the U. S. P. Committee of Revision 713
Editorial Notes 714
Personal and News Items 716
Societies and Colleges 718
Obituary 725
Book Notices and Reviews 731
Advertising—Cover Pages 2, 3 and 4 and pp. I–XXVI.

Published Monthly by the American Pharmaceutical Association: Office of publication, 20th & Northampton Sts., Easton, Pa. Editorial Office, 10 West Chase St., Baltimore, Md.

Annual Subscription, $4.00; Single Numbers, 35 Cents.

THE 79th ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN MIAMI, FLA., DURING WEEK OF JULY 27th. HEADQUARTERS, COLUMBUS HOTEL. LOCAL SECRETARY, G. H. GROMMET, 2364 S. W. 11th ST., MIAMI.

The 1931 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Association Secretaries and of Pharmaceutical Law Enforcement Officials will also be held at Miami, same time and place. The Plant Science Seminar will be held at Gainesville, Fla., during the week of July 20th.

Entered as second-class Matter, January 23, 1917, at the Post Office at Easton, Pa., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103. Act of October 3, 1917; authorized July 10, 1918.

GASTRON

A complete gastric gland extract, in a potent agreeable solution.

SUPPLIED IN 6-OZ. AND 32-OZ. BOTTLES ONLY

FAIRCHILD BROS. & FOSTER
NEW YORK

As Reliable as the Electric Clock

"I have used the Mallinckrodt Line for twenty years, and in all that time have not received a single unsatisfactory item," said a successful druggist recently.

Those twenty years of unbroken satisfaction have been the result of more than fifty years of untiring effort to make each of the 1500 Mallinckrodt Prescription Chemicals worthy of such a recommendation—and worthy of your patronage.

Write nearest branch for your copy of our complete catalog. MALLINCKRODT CHEMICAL WORKS.

Over 1500 **Mallinckrodt** *Fine Chemicals*

For the Prescription Druggist

St. Louis *Philadelphia* *New York*
Chicago *Toronto* *Montreal*

ADDRESSES OF THE 79TH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

EVERY phase of pharmaceutical interest will have consideration at the Miami meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION. The subjects will be discussed with a view of arriving at understandings or solutions of the questions and problems involved.

The addresses of President Sturmer of the American Association of Colleges of Pharmacy and of President Hankins of the National Association Boards of Pharmacy will be delivered on Monday, July 27th. Education and registration are always live subjects in pharmacy, and, particularly, just now.

Governor Carlton of Florida will welcome the visitors to the "Gulf State."

President Christensen will deliver his presidential address during the opening session of the AMERICAN PHARMACEUTICAL ASSOCIATION on Wednesday morning and Dr. J. J. Durrett, of the Food and Drug Administration, will speak on the U. S. P. and N. F. as standards under the Pure Food and Drugs Act and the responsibility of pharmacists in connection with the revision of these standards.

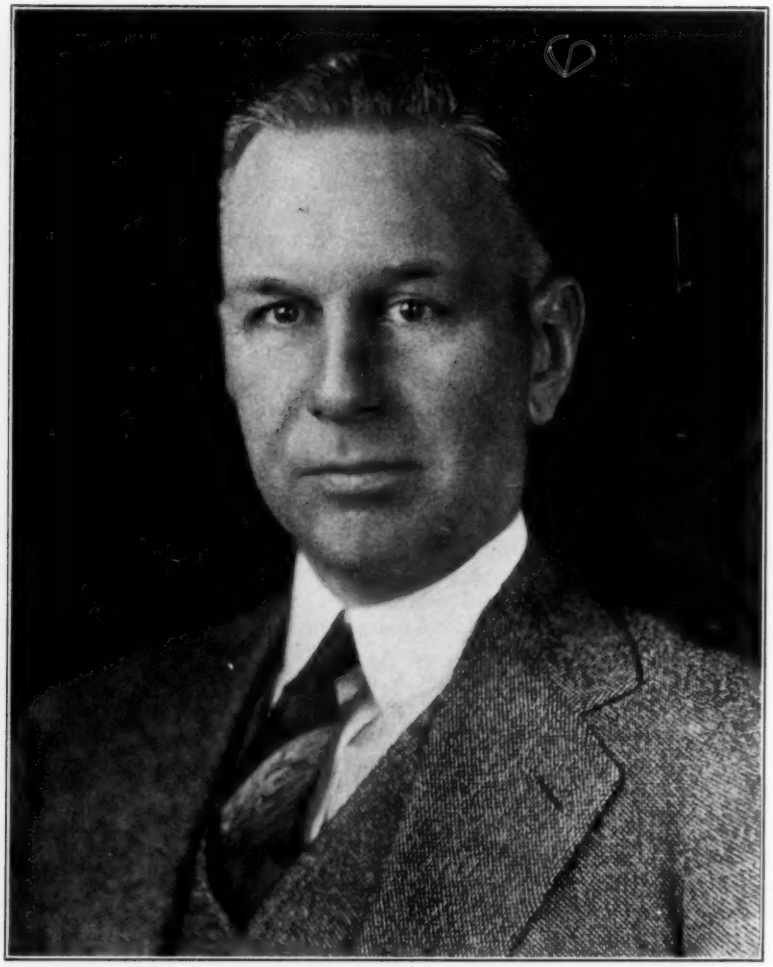
Meetings of the U. S. P. and N. F. Committees were held during the closing days of June. A survey is being made to learn the number of prescriptions compounded and their constituents as an aid to revision of the standards. The U. S. Department of Commerce is conducting a Drug Store Survey in St. Louis. Reports on all of these important studies will be made and also on progress of the revision of the Syllabus. Chairman Cook, Gathercoal, Beard and President Sisson, of the Chicago Retail Druggists' Association, will be heard from. Narcotic and alcohol problems will be discussed by men familiar with these.

Colonel A. D. Tuttle, representing the Medical Department of the U. S. Army and the Surgeon General, will explain the views and attitude of the Army officials on improving the pharmaceutical service in the Army and on the commissioning of pharmacists.

The Conferences of Law Enforcement Officials, of Pharmaceutical Secretaries, on Research, will present and discuss subjects—laws and methods, and progress of pharmacy. Chairman C. B. Jordan of the House of Delegates will continue his illustrated lectures on Professional Pharmacy.

All of the Sections have interesting and instructive programs; more than 100 papers are listed, including scientific, educational, legislative, practical pharmacy, dispensing, commercial and historical subjects. The Ebert Prize will be awarded at the closing session for the most valuable research reported during the year.

Chairman H. A. B. Dunning will report the progress being made toward the erection of the Headquarters Building in Washington (The American Institute of Pharmacy) and will outline plans for its activities. He will also report the latest plans of the Government for the improvement of the area in which the site for the Building is located.



NICHOLAS H. NOYES.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XX JULY, 1931 No. 7

THE PRESIDENT OF THE AMERICAN DRUG MANUFACTURERS' ASSOCIATION.

Nicholas Hartman Noyes was born in Dansville, N. Y., August 8, 1883, the son of Frederic W. and Emma Hartman Noyes. His early education was received in his home city at the Dansville High School and, later, at Lawrenceville School; thereafter, he entered Cornell University and received the A.B. degree in 1906; in 1918 and 1919 he was president of the Alumni Association of the latter.

After graduation, Mr. Noyes entered the publishing field and was connected with *McClures Magazine* until 1910. He became associated with Eli Lilly & Co. in May of the latter year; until 1913 he was cashier and then named assistant treasurer; in the year following he was appointed purchasing agent and elected director and treasurer.

Mr. Noyes is also president of the Paper Package Company of Indianapolis and of the Fletcher Savings and Trust Company. He was president of the Indianapolis Chamber of Commerce in 1926, and holds membership in several New York and Indianapolis clubs. President Noyes has been member and chairman of a number of committees of the American Drug Manufacturers' Association, and for four years prior to election as head of the organization was vice-president.

Mr. Noyes and Marguerite Lilly were married in Indianapolis, in 1908; they are members of the Presbyterian Church. Three children—Nicholas H. Jr., Evan L. and Janet—grace the family circle.

EDITORIAL

F. G. EBERLE, EDITOR 10 West Chase Street, BALTIMORE, MD.

BI-CENTENARY OF BARTRAM'S GARDENS.

VARIOUS botanical, scientific societies, historical and other organizations celebrated the two hundredth anniversary of the founding of the Botanical Gardens by John Bartram at Kingsessing, now a part of Philadelphia, June 5 and 6, 1931. Our records, however, show that this garden was started in 1728, and in the August issue of the JOURNAL A. PH. A., for 1917, a sketch was prepared of John Bartram and, included therewith, a picture of the Bartram residence and of the famous Bartram cypress tree; the front cover of a Bartram herbarium folder and a sheet of the page showing ginseng; also a letter from John Bartram to Dr. John Fothergill, which is reproduced in this number.

John Bartram was highly regarded in England both by scientists and by the royalty. He was appointed by the King botanist and naturalist for the American colonies, and it was in pursuance of these duties that he explored Florida. It was here that he found the stripling cypress which grew into a tree shown in the number of the JOURNAL referred to. He was a correspondent of Dr. John Fothergill, Peter Collinson and Hans Sloane.

It was at the advanced age of 70 years that John Bartram made a tour into east Florida. Arriving at St. Augustine he embarked on board of a boat at Picolota on the St. Johns River, which he navigated with three oars and a sail, with a hunter to provide fresh meats. From Picolota he proceeded up the east bank of the St. Johns and also explored the west coast of Florida.

We have no picture of John Bartram; a description of him reads as follows:

"His stature was rather above the middle size, erect and slender; visage long; countenance cheerful and gay, regulated with a due degree of solemnity; his manners were modest and gentle; his disposition active and of the greatest good nature. He was industrious and active, indulging in repose only when nature required it, observing that he could never find more time than he could with pleasure employ, either intelligently or in some useful exercise and was astounded when people complained that they were tired of time, not knowing how to employ it or what they should do."

He was a member of the Society of Friends, a member of the "Free Quakers," an organization to which the Marshalls also belonged.

A son of John Bartram (William), born at the Botanic Gardens, in 1739, was also an eminent botanist. He resided for a time in North Carolina and also on the River St. Johns in Florida. In 1773, at the request of Dr. Fothergill, he studied the resources of the Carolinas, Georgia and Florida.

Reposing in a grove, in Florida, of oranges, palms and magnolias, in the midst of beautiful flowers and singing birds, he cried out: "Ye vigilant and most faithful servants of the Most High; ye who worship the Creator morning, noon and eve, in simplicity of heart! I haste to join the universal anthem. My heart and voice unite with yours in sincere homage to the great Creator, the universal Sovereign." Thus we find that a century and a half ago the attractions of Florida were known to those who love Nature and were appreciated by our antecedents.

In 1782, he was elected professor of Botany by the University of Pennsylvania, but on account of his health declined the appointment. He was a co-author of a number of books and published "Travels through North and South Carolina, Georgia and West Florida and the Cherokee Country." He died July 22, 1823, aged eighty-five years.

Moses Bartram, another son of John Bartram, was born August 16, 1732. For a time he followed the sea and then entered into partnership with his brother Isaac in the drug business in which he continued until his death. He was a member of the American Society which was afterward consolidated with the American Philosophical Society. Like his father, he adhered to the cause of the colonies and served as chairman of the Committee to look after the families of soldiers in the Second Battalion, in 1776.

He was one of the organizers of the Society of "Free Quakers," above mentioned, and one of their leaders for a number of years. He died December 25, 1809.

THE PHARMACIST'S PART IN PUBLIC HEALTH SERVICE.

DR. HUGH S. CUMMING, Surgeon-General, U. S. Public Health Service has said that "the usually strategic position and the familiar association of the pharmacy with medical matters in the popular mind places pharmacists in a position to render a material service to the community in connection with public health activities. It is the privilege, as well as the duty, of a pharmacist to cooperate with public health agencies in the dissemination of reliable information concerning the public health, and to assist the constituted public health authorities especially as relates to communicable diseases and the protection of biologic products. It is, therefore, evident that a pharmacist should possess information of wider scope on matters pertaining to the public health than is possessed by the average layman.

"Health officers generally have recognized that health education is an important means for promoting public and personal health. Broadly speaking, public health in a given community depends upon the personal health of each individual. To give information on any subject to everyone in a community is a tremendous task, and one that can never be finished. It has no end because new facts are being constantly developed through research and new people are being added to each community through new arrivals and the growth of children to the teachable age. Those who are trying to promote health education for the public have, therefore, the task of imparting an ever-increasing mass of information to an ever-changing population.

"The magnitude of such a task, instead of being a cause for pessimism, should be a challenge to persons interested in the public health to develop a plan whereby each community may feel a sense of responsibility for the important task of health education. Members of the profession of pharmacy can play an important part in the matter of health education.

"The facts for health education are developed by the laboratory workers, those engaged in scientific research of all kinds, the field workers in epidemiology, the vital statisticians, who keep the record of progress, and those clinicians who are close observers of their patients.

"Every person should have a working knowledge of what he should expect in the way of health education from his physician, dentist, pharmacist and nurse, and from the local health organization. In addition to this, he should know what an intelligent and well-organized state department of health may do for the promotion of the health of the citizens of the state, and what may be expected from the Federal Government in the way of health conservation. In order that the pharmacist may measure up to his responsibilities in the matter of the demands for health information, he must, of course, be properly informed with regard to such matters."

In some states the legislators have recognized the importance of pharmacy as a public health service in the provisions which places a pharmacist on the Public Health Board; recently, the example has been followed by several states. It behooves pharmacists to take a deep interest in these matters by seeing that the laws provide for qualified pharmacists in the position, so that the importance of pharmacy may be realized, and as a public health service. In the Colorado appointment physicians were as intensely interested in the appointment of the pharmacist as pharmacists themselves, and so it should be; they understand the importance of the service and the greater possibilities when all branches of the medical and chemical activities are represented on the Board. In Maryland the pharmacists have gained in recognition, because of the service rendered by the officials; it requires a deep interest and knowledge of the problems of this very important service. Quoting Dr. Cumming again:

"The public, generally, is rapidly awakening to the possibilities of preventive medicine due to the tremendous volume of publicity on health matters that has developed within the past few years. It will be well, however, to remember that the circulation of misinformation by individuals and unrecognized organizations must be avoided. With the development of general interest in public health matters there has sprung up, in certain quarters, an effort on the part of individuals and organizations, for selfish reasons, to disseminate quasi-scientific information that is incorrect, misleading and harmful."

Public health matters are subjects deserving of study by pharmacists and, incidentally, enables them to utilize the information for service and gaining for themselves the good will of patrons and physicians. The public health broadcasts and bulletins issued by the Bureau of U. S. Public Health Service and State Departments point out ways for being helpful. Public Health Broadcast, entitled "Sanitation of Automobile Tourist Camps" was given to the public, on July 1st, under the direction of the Surgeon-General; we quote a paragraph.

"As early as 1925 it was estimated that in thirty-five States there were more than 3000 camps attended by over 2,000,000 campers. In 1928, it was estimated that, in California alone, there were 1400 automobile camps. In other States, particularly those with well advertised scenic areas, there were probably several thousand others. Investment in camps of all kinds in the State of Maine has been estimated to exceed $5,000,000. Much has been done within recent years to improve tourist camps, but there is yet much more to do. For example, in one State in 1926, there were 233 camps inspected, and only 104 of these could be approved."

Pharmacists should keep public health bulletins on file for giving information to the public in coöperation with the departments concerned with public health

matters; their service can be made of great value and, if this is the outstanding purpose, no one will deny them the right of reasonable remuneration therefrom.

THE DEPARTMENT OF COMMERCE BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

HAVING spoken at length in the foregoing of the Bureau, U. S. Public Health Service, a few words will be added in this comment on the Department of Commerce, Bureau of Foreign and Domestic Commerce. The bulletins issued by the Department relating to medicinals are frequently quoted in the JOURNAL and are sources of valuable information. The officials and consuls are constantly seeking helpful information; citing as an example, the bulletin of June 15th relating to chemicals and allied products—brief reports are included on "Opportunity for American Chemicals in Jugoslavia;" imports and exports of chemicals of Shanghai, Canada, France; "Medicinal Trade in Canada;" "Pharmaceuticals, Production, Soviet Russia;" "Toiletries, Consumption, Panama;" "Essential Oils, Consumption, Germany," and many related reports which pharmacists can use to advantage.

Reference has heretofore been made to the National Drug Survey in St. Louis, now being conducted. At a number of State pharmaceutical associations interesting reports were made of its progress. The Government also had officials at State meetings to explain the methods of handling industrial alcohol, showing that the intention is to be helpful. On page 623 of this issue further evidence will be found of the Government's desire to be helpful to professional, industrial and merchandising activities; this purpose is developing more than ever and coördinated coöperation will be productive of better conditions and place all of the activities on a better footing and establish right relations.

THE LIMITATION OF THE MANUFACTURE OF NARCOTICS.

THE Franco-Japanese "open market plan" as the basis of the limitation system was adopted by the Geneva Conference on June 19th; the quota system on which the draft convention has been based was defeated.

The United States voted for the Franco-Japanese plan as "embodying the principles" of the American rotating stock proposals as far as it went. The chances of the main American idea of the limitation of raw material supplied to factories being added to it as an amendment are considered much better now.

Those voting for the Franco-Japanese proposal were Argentina, Germany, Canada, Spain, the United States, Finland, France, Greece, Italy, Japan, Persia, Poland, Switzerland and Turkey. The abstainers were Egypt, India, Netherlands, Siam, Portugal and Yugoslavia.

In both the quota and open market plans each country would estimate annually its medicinal needs and manufacturers would be limited to the world total. The principal difference between them is that the former sought to divide them in quotas among the manufacturing countries, giving them power which the consuming countries and the producers of raw material feared.

SIXTH INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY.

THE sixth International Congress of Military Medicine and Pharmacy was held at The Hague, under the auspices of the Ministry of National Defense, from June 15th to 20th. Delegates attended from over twenty countries. The subjects for discussion included the recruitment and training of medical and pharmaceutical officers; war neuro-psychoses; the keeping properties of prepared medicines in tubes and their use in military medicine; first aid on the battle-field, with special reference to hemorrhage.

Numerous social events were arranged, among them being a banquet given by the Netherland Government, a reception by the Mayor and Corporation of The Hague and a reception by the Dutch Red Cross. The president of the Conference was Dr. J. C. Diehl, the Director-General of the Army Medical Services.

Major E. Saville Peck was the representative of the Pharmaceutical Society of Great Britain; the United States had no pharmacist as representative.

AN AMERICAN PHARMACY.

In previous issues several foreign pharmacies have been shown. The pharmacy herewith, that of Hynson, Westcott & Dunning, Baltimore, Md., is at the corner of Chase and Charles Streets. The prescription department can be located back of the partitions by one of the cases showing through the opening in the partition. A number of pharmacists work independently of each other, being supplied with work desk, stock and needed apparatus.

SCIENTIFIC SECTION

PHYTOCHEMICAL NOTES.*

NO. 106. MONARDA PUNCTATA, L.†

BY A. A. HARWOOD.

Also for the purpose of supplementing earlier chemical work on this species, most of which had been done in connection with the volatile constituents thereof, a more careful study of the non-volatile constituents of the leaves was undertaken. This was particularly desirable for the sake of comparison with the non-volatile constituents of other species of Monarda in particular and of other labiates, in general.[1]

Extraction of Leaves.—47½ lbs. of powdered, air-dried leaves were extracted with 95 p. c. alcohol in the Lloyd extractor. After recovery of nearly all of the alcohol, the extract was steam-distilled. From the distillate, which contained some alcohol not previously recovered, the volatile oil was separated and the aqueous, or hydroalcoholic, portion cohobated. The non-volatile residue separated into an aqueous solution and an insoluble portion. Both were shaken separately and repeatedly with petroleum ether, the solvent being recovered in each case for further extraction. The petroleum-ether extracts were mixed. Hence there resulted the following products:

A. A volatile oil.
B. An aqueous (or hydroalcoholic) distillate.
C. A petroleum-ether extract containing fatty oil and other soluble constituents, such as chlorophyl, etc.
D. An aqueous solution of the water-soluble constituents of the original alcoholic extract after both volatile oil and fatty oil had been removed.
E. A powder consisting of the water-insoluble constituents of the original alcoholic extract after both volatile oil and fatty oil had been removed.
F. The dregs from the Lloyd extractor after the powdered leaves had been exhausted with 95 p. c. alcohol.

A. The Volatile Oil.—As previously indicated, the volatile oil (210 cc.) was obtained by steam distillation of the concentrated alcoholic extract. It was turned over to S. Chechik. Unfortunately the density was not determined. The phenol content, on two samples, as determined by shaking with 5 p. c. sodium hydroxide solution was found to be 89.0 p. c. and 89.1 p. c., respectively. The oil was reddish brown in color.

The aqueous distillate from the separated oil was cohobated as described later. The oil collected from the first cohobation amounted to 19 cc., was of a bright red color and had a specific gravity of 0.9501 at 22° C. The phenol content was found to be 97 p. c. and 98 p. c. on two samples. The second cohobation yielded 4 cc. of oil of a medium yellow color. The specific gravity at 22° C. was 0.9476. The phenol content was found to be 100 p. c. on the one sample.

* From the laboratory of Edward Kremers.

† Part of a thesis submitted for the degree of Doctor of Philosophy, University of Wisconsin. See also THIS JOURNAL, 19 (1930), 228; *Ibid.*, 19 (1930), 1171.

[1] The non-volatile constituents of *Mentha citrata* have been reported by S. Gordon (*Amer. J. Pharm.*, 100 (1928), 433 and 509), those of *M. piperita* by H. Braun (*Ibid.*, 102 (1930), 202).

All three oils are of an unusually high phenol content.

B. The Aqueous Distillate.—The aqueous distillate, from which the volatile oil had been removed, was cohobated until about $^1/_3$ its volume (approximately 10 liters) had been collected. The cohobate after removal of the oil was then redistilled, collecting again $^1/_3$ of its volume as before.

The final cohobate, after removal of another 4 cc. of volatile oil (see "A"), was fractionally distilled, the following fractions being collected (1) —65° C.; (2) 65–80° C.; (3) 80–85° C.; (4) 85–90° C.; (5) 90–95° C. Only a drop or so came over up to 65° C., hence only the last four fractions were refractionated with the following results.

		Amount.	Schiff's reagent.	Resorcinol sulphuric acid.	Gallic acid sol. + sulphuric acid.
(1)	—75° C.	0.5 cc.	+	+	+
(2)	75–76° C.	4.0 cc	+	+	+
(3)	76–78° C.	26.0 cc.	+	+	−
(4)	78–79° C.	72.0 cc.	−	−	−
(5)	79–80° C.	2.8 cc.	−	−	−
(6)	Residue (added to 90–95° C. above).				

The test with Schiff's reagent indicates the presence of an aldehyde in the first two and possibly the third fraction while the resorcinol-sulphuric acid test and the gallic acid-sulphuric acid test indicate the presence of formaldehyde. The second fraction gave a faint test for acetaldehyde when boiled with dilute sodium hydroxide solution while a red coloration was produced in the third fraction. When Fractions 3, 4 and 5 were heated with a small amount of glacial acetic acid with a few drops of sulphuric acid, the odor of ethyl acetate was quite perceptible—hence the presence of ethyl alcohol is indicated.

The test with sodium nitroprusside solution gave a negative test for the presence of acetone.

C. The Petroleum-Ether Extract.—This amounted to 1110 Gm. or 5.3 p. c. of the drug. It was saponified with an excess (about 25 p. c.) of a hydro-alcoholic solution of potassium hydroxide. The odor of ammonia becoming perceptible the reaction mixture was distilled, the vapors being collected in a 10-p. c. aqueous hydrochloric acid. Upon evaporation, only a small amount of residue remained, insufficient for the study of any possible amines.

The soap solution, from which the alcohol had been removed by distillation, was extracted repeatedly with ether. Evaporation of the solvent left 325 Gm. of unsaponifiable material. To the soap solution, a hot concentrated solution of lead acetate was added in slight excess under constant stirring. The lead precipitate was washed with hot water, dried and extracted with ether. The ethereal solution was filtered through a dry fluted filter paper. In this manner the ether-soluble compounds were separated from the ether-insoluble ones. In each case the lead compounds were decomposed with aqueous hydrogen chloride. The ethereal solution, after separation and evaporation of the solvent, yielded the so-called solid and liquid fatty acids, respectively. Thus the petroleum-ether extract was resolved into three portions, *viz.:*

I. Nonsaponifiable material (325 Gm.)
II. Solid fatty acids (176 Gm.)
III. Liquid fatty acids (119 Gm.).

I. Examination of Nonsaponifiable Material.—Inasmuch as the amount of non-saponifiable material seemed unusually large, a test for fatty material that might have escaped saponification was made, but with negative results. Acetylation gave 204.1 and 205.3 in two assays.

Although this material had been obtained from the original extract after steam distillation, it had a decided odor of thymol. In order to ascertain the approximate amount of phenol present, 3.4 cc. were shaken in a graduated cylinder with an excess of 5 p. c. sodium hydroxide solution. The volume was reduced to 2.5 cc., hence had suffered a diminution of 26.5 p. c.

In order to separate the phenols, the bulk of the unsaponifiable material was dissolved in heptane and the heptane solution extracted repeatedly with 5 p. c. aqueous sodium hydroxide. Before acidulating the separated aqueous solution it was shaken with heptane. The aqueous alkaline solutions, thus purified, upon acidulation with hydrochloric acid yielded the free phenols, which, upon standing, crystallized out.

A total of 104 Gm. of thymol, corresponding to 32.0 p. c. of the unsaponifiable, was obtained.

After the removal of the phenol as described, the heptane solution, upon standing, yielded a flocculent precipitate. Upon recrystallization from a large amount of heptane, the slightly yellow crystals obtained were recrystallized from a 50–50 solution of 95 p. c. alcohol and ethyl acetate. After a second recrystallization from the same solvent, the colorless crystals resulting gave the Liebermann color reaction for phytosterol. They melted at 136.5° C. The acetate, prepared in the usual manner, melted at 124.5° C. Phytosterols melt between 132–144° C., their acetates between 125–137° C.

The heptane filtrate from which the impure phytosterol had been separated was concentrated. Upon cooling the concentrate yielded a precipitate which was difficult to separate by filtration. Hence the heptane was removed completely and the residue dissolved in hot alcohol. Upon cooling, waxy material was obtained, readily soluble in hot, but sparingly soluble in cold alcohol. It melted at 68–70°. Some of this material was heated for an hour with acetic anhydride. The acetic anhydride was removed by evaporation and the residue crystallized several times from absolute alcohol. All of the acetylated product failed to go into solution in alcohol, so it was separated by filtration. The recrystallized acetylated product melted at 97–99° C. After repeated recrystallizations, the melting point rose to 104–105° C. The acetyl value as determined by saponification with $N/2$ alcoholic KOH was 107. The material from the determination of the acetyl value was freed from the soluble potassium salts by washing with water. After recrystallizing from alcohol, it melted at 127° C. and gave a positive Liebermann test for phytosterol. The melting point rose to 133° C. after repeated crystallization.

II. Examination of Solid Fatty Acids.—The methylation was carried out according to the method as outlined by G. D. Elsdon.[1] The 176 Gm. of solid fatty acids were refluxed with 400 cc. of anhydrous methyl alcohol[2] containing 2

[1] *Analyst*, 38 (1913), 8.

[2] The methanol was prepared by shaking stock methyl alcohol with burned lime for 24 hours and subsequent fractionation. Fraction 65° C. was reserved for the experiment.

p. c. HCl for 15 hours. Upon cooling, a semi-solid mass separated. The supernatent liquid was poured into 1600 cc. of water, from which solution the methyl esters were extracted with ether by repeated shaking. The combined ethereal extracts, in which was dissolved the semi-solid material referred to above, were washed with 1 p. c. sodium-carbonate solution in order to remove any hydrogen chloride that might be present. Upon evaporation of the solvent, 123 Gm.[1] of residue were obtained. The material thus obtained was a thick, dark green mass that was rather uninviting. An attempt to effect a separation by means of heptane seemed promising at first, but did not yield the expected results, hence was abandoned. Upon fractionation under diminished pressure (2.5 mm.) the liquid frothed at about 45° C. to such an extent that this method also had to be abandoned.

The methyl esters of the saturated fatty acids were, therefore, saponified with concentrated alcoholic potash. After removal of the alcohol, the resultant soap was broken up with 10 p. c. hydrochloric acid. The liberated fatty acids were then extracted with ether. However, it was found that the bulk of the material would not dissolve in ether but formed a layer at the junction of the acid solution. The ether layer was filtered and the ether removed. The ether-insoluble material was reserved for further investigation. Thirty grams of a semi-solid mass of the acids remained. An alcoholic solution of the acids was next prepared and this was treated while warm with a concentrated alcoholic solution of magnesium acetate in the ratio of $^1/_{30}$ of the weight of the acids. After the addition of the magnesium-acetate solution, the mixture was allowed to cool. The precipitated magnesium soaps were filtered off and dried. This procedure was repeated four times with a precipitate forming in each case. The fifth addition of magnesium acetate, however, caused no precipitation. The fatty acids from each precipitation were liberated by warming with dilute hydrochloric acid and the free acids shaken out with ether. After removing the ether, the acids were dried and the melting points determined. The melting points did not vary to any extent, all the samples melting from 54° to 57°. Inasmuch as there was only a small quantity, they were mixed. The combined acids were recrystallized several times from alcohol and several times from glacial acetic when their melting point was found to be 63° C. The neutralization value was determined on one sample and found to be 205.4. The acid from the neutralization value was liberated with dilute hydrochloric acid, decolorized with charcoal, and recrystallized from alcohol. The melting point was 63.0° C. Palmitic acid melts at 62.6° and has a neutralization value of 218.9. Stearic acid melts at 70–71.5° and has a neutralization value of 197.3. The melting point of the acid would indicate palmitic but the neutralization value is rather low.

The alcoholic solution, after all the magnesium soaps had been removed, was freed from solvent by evaporation. A viscid liquid remained which did not deposit crystals upon cooling. This material was dissolved in glacial acetic acid but nothing of a crystalline nature was obtained. It was probably some of the unsaturated fatty acids which were present due to the imperfect separation by the lead-salt ether method.

III. Examination of the Liquid Fatty Acids.—The liquid fatty acids were

[1] Owing to frothing in the methylation, some of the material was lost, hence the reduced yield.

separated from the solid fatty acids by the modified Gusserow-Varrentrapp lead salt-ether method.[1] The lead salts which were soluble in ether were liberated with 10 p. c. HCl and, after recovery of the ether, weighed 119 grams.

Oxidation of the Liquid Fatty Acids.—Thirty grams of the liquid fatty acids were oxidized according to Hazura's method[2] by treating an aqueous solution of the potassium soaps with a $1^1/_2$ p. c. solution of potassium permanganate. The precipitated manganese oxide was brought back into solution with SO_2 gas. The mixture was filtered and the precipitate treated with 500 cc. of ether at room temperature. After the solution had been filtered, the ether was recovered and a small amount of material obtained which, after one purification with alcohol, melted at 65–68°. However, the amount was too small to allow of purification. Nearly all of the precipitate was soluble in ether, indicating the absence of, or at least the presence of only a small amount of sativic acid.

The filtrate, from the first operation, had a volume of 4000 cc. This was evaporated down to a volume of about 350 cc. or approximately $^1/_{12}$ of the former volume. A flocculent precipitate came down which after several recrystallizations from alcohol melted at 202° C. but still retained some of the green color. The melting point of 202° C. would indicate linusic acid which is an oxidation product of linolenic acid. Linusic acid melts at 203–205° C.

Bromination of the Liquid Fatty Acids.—Ten grams of the fatty acids were dissolved in sufficient ether to make a 10-p. c. solution and cooled in an ice-salt bath; 2.5 cc. of bromine were then added slowly, with agitation, over a period of 35 minutes and another 2.5 cc. added over a period of 20 minutes. The ethereal solution was then allowed to stand for 2 hours. At the end of this period, the precipitate was filtered off and the ethereal solution washed several times with sodium thiosulphate solution to free it from excess bromine. This precipitate, after recrystallizing from benzene, melted at 180.5° C. The melting point of stearic acid hexabromide is 180–181° C. The bromine content determined on two samples was 59.2 p. c. and 60.4 p. c. Stearic acid hexabromide has a theoretical bromine content of 63.27 p. c. Tetrabromstearic acid has a melting point of 113–114° C. and a bromine content of 50.33 p. c.

The ethereal filtrate after washing with sodium-thiosulphate solution was distilled and the ether recovered. The residue was taken up with petroleum ether and the solution subjected to a low temperature but no crystals were obtained indicating the absence of linoleic acid.

The petroleum-ether filtrate was then subjected to distillation and the petroleum ether recovered. The bromine content of the residue was found to be 32.7 p. c. and 31.3 p. c., respectively, on two samples. Oleic acid dibromide has a theoretical bromine content of 36.17 p. c.

D. Examination of the Aqueous Extract.—Having been extracted with petroleum ether (see above, under "Extraction of Leaves") this extract was concentrated at a relatively low temperature and the concentrate shaken successively with ether, chloroform, etc. From the ethereal, chloroformic, etc., extracts the solvents were recovered. After the several extractions with these immiscible

[1] G. Lewkowitsch, "Chem. Tech. and Analysis of Oils, Fats and Waxes," 1 (London, 1921), 559.

[2] K. Hazura, *Monatsh.*, 9 (1888), 469.

solvents, the modified aqueous extract was treated as described below under chloroform extract.

In this manner the following products were obtained, *viz.*:

I. Material soluble in ether
II. Material soluble in chloroform
III. Material insoluble in chloroform.

I. Ether Extract.—After recovery of the ether, a syrupy liquid remained from which about 22 Gm. of crystals separated corresponding to 0.001 p. c. of the crude drug. Purified by sublimation, the white crystals melted at 140–141° C., the melting point of hydrothymoquinone. With thymoquinone they gave the thymoquinhydrone test. From the mother liquor, from which the hydrothymoquinone had been obtained, 9 Gm. of impure hydrothymoquinone were obtained by heating with water and chilling the solution. The aqueous filtrate was set aside for further investigation. It is less surprising that hydrothymoquinone should have remained behind in the steam distillation of the original extract than thymol, yet it is noteworthy that so much of this diatomic phenol should have escaped coming over with the volatile oil. True, when computed with reference to the crude drug, it amounts to but very little.

II. Chloroform Extract.—Upon concentration of the chloroformic extract and exposure of the concentrate to an ice-salt bath, long silky needles, green in color, no doubt because impure, separated which melted at 121° to 128° C. Recrystallized twice from alcohol the melting point had risen to 201° C. This substance was heated with dilute hydrochloric acid on a water-bath for 15 minutes and the cooled solution shaken with ether. The ethereal solution was added to an ethereal solution of thymoquinone on a crucible cover. Upon evaporation of the solvent, a blue-black residue suggestive of thymoquinhydrone was obtained. This indicates hydrothymoquinone as a product of hydrolysis of a possible glucoside. Further confirmation of the presence of a glucoside was obtained by neutralization of the aqueous acid solution which gave a positive test for sugar with Fehling's solution.

Anxious to obtain more of the glucoside thus indicated, the aqueous liquid which had been shaken repeatedly with chloroform was evaporated to dryness and mixed with purified sand and the material thus obtained subjected to extraction with chloroform for 12 to 15 hours in a continuous extractor. However, only a small amount of additional material was obtained from which even repeated recrystallizations failed to remove all of the green color. It melted at 201° C. which agrees closely with the melting point of several glucosides, especially with that of arbutin 200° C. (methyl arbutin melts at 175°). Upon hydrolysis of its aqueous solution a precipitate resulted. Purified from alcohol, it melted at 138–140° C. Whereas the quinhydrone test described above indicated a diatomic phenol but not necessarily hydrothymoquinone, this melting point distinctly indicates the latter.

III. Material Insoluble in Chloroform.—A small amount of the sand mixture was extracted with hot ethyl acetate. However, very little material seemed to be extracted, so the remainder of the sand mixture was reserved for further investigation.

SUMMARY.

(1) The volatile oil obtained by steam distillation of the alcoholic extract had a phenol content of 89 p. c.

(2) The presence of formaldehyde and acetaldehyde in the aqueous cohobate is indicated.

(3) The non-saponifiable material from the petroleum-ether extract was found to contain a considerable amount of thymol. If this amount of thymol is added to that in the volatile oil, the percentage is found to be 1.3 p. c., which is a surprisingly large yield.

(4) Linolenic, oleic and possibly palmitic acids were found to be present in the saponifiable portion of the petroleum ether extract.

(5) Hydrothymoquinone was identified and a glucoside of hydrothymoquinone was indicated in the water-soluble portion of the alcoholic extract.

THE USE OF ALUMINUM AND STANNOUS CHLORIDE IN THE GUTZEIT TEST FOR ARSENIC.*

BY LOUIS P. MAYRAND.

Analytical chemists have encountered two major difficulties in the detection of small amounts of arsenic by the Gutzeit and Marsh Methods. These obstacles are *first*, arsenic-testing zinc varies markedly in its purity, and *second*, it is very difficult to obtain this metal in a strictly arsenic-free state. Of these, the former is more conducive to poor results than the latter.

The zinc that is to be used for the evolution of hydrogen in these tests is not easily produced in an arsenic-free condition. The results of experiments indicate that some of the drillings from various sections of a supposedly arsenic-free zinc slab contain arsenic, whereas similar drillings from other sections of the same slab do not. The apparent variation in the arsenic contents throughout the zinc slab may be due as much to the difference in formation of active (*i. e.*, atomic) hydrogen caused by an uneven distribution of metallic impurities as to the irregularity in arsenic contents.

The purity of a metal plays a very important part in the rate of formation of active hydrogen. The rate of formation of active hydrogen is in turn an important factor in the reduction of a substance. In the Gutzeit and Marsh tests very small amounts of arsenic are usually dealt with. Unless a certain reducing action exists during the arsenic-testing reaction, the arsenic present may not be entirely reduced to arsine (AsH_3). That is to say, it appears that it is difficult to displace the last traces of arsenic introduced into the reaction.

The metals which occur below hydrogen in the potential series are capable of causing an evolution of hydrogen when introduced under suitable conditions into a dilute solution of an ionizable acid. The velocity of the reaction varies to a marked extent with the purity of the metal. Pure zinc, for instance, is almost unattacked by pure dilute sulphuric acid, but if the zinc be touched with a copper rod below the surface of the acid, solution of the zinc at once commences with

* Northwestern Branch, A. PH. A., May 1, 1930.

copious evolution of hydrogen. The resulting hydrogen bubbles are actually evolved from the copper rod, not from the zinc itself, although it is the zinc and not the copper which is passing into solution. A short-circuited cell (Fig. 1) is produced, and the production of such a cell is the cause of the rapid attack (1).

Instead of touching the zinc with a copper rod, the violent reaction of pure zinc with the acid can be brought about by adding a trace of copper sulphate to the acid. At once metallic copper is deposited on the surface of the zinc. Short circuited cells or "couples" of the type just described are formed all over the surface, and the rate of attack by the acid becomes very violent.

If zinc is impure, the "couples" may be formed upon the surface even without the addition of copper sulphate or similar salt to the solution. If the zinc contains a mere trace of a comparatively noble metal, such as copper, nickel, gold or platinum, the rate of attack by acid is notably increased. The attack of acid upon slightly impure zinc often is not very rapid when the metal is first immersed in the acid, because the small amount of impurity may exist in solid solution in the zinc and will not therefore constitute the cathodic element of a couple at the moment of immersion. The slow action, however, brings a certain amount of the noble metal into solution and it is then reprecipitated, as a separate phase, upon the surface

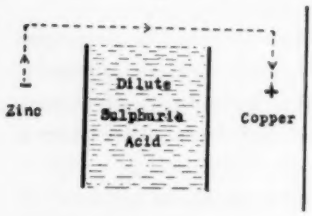


Fig. 1.

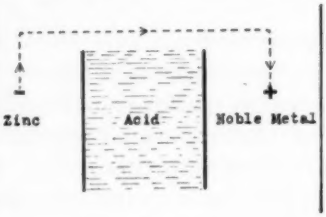


Fig. 2.

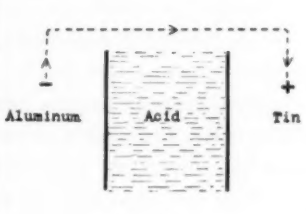


Fig. 3.

of the metallic zinc. As soon as this occurs, the couple (Fig. 2) appears, and the attack by the acid becomes very much quicker (1).

Since arsenic-testing-zinc varies markedly in purity, a wide variation in the amount of active hydrogen formed over a certain period of time will result by the treatment of different zinc samples with the same concentration of acid. As explained, the rate at which active hydrogen is produced by zinc and a definite concentration of acid varies inversely as the purity of the metal. In other words, the purer the zinc the more slowly will hydrogen be evolved, whereas the larger the percentage of impurities in the metal the more rapidly will hydrogen be produced. Therefore, a very impure zinc will cause a violent evolution of hydrogen, even if the arsenic-testing-apparatus is cooled. Hence, any arsine resulting therefrom will give rise to a "spreading" of the arsenic stain on the mercuric bromide paper in the Gutzeit apparatus. This condition makes an accurate comparison between different stains very difficult. Therefore, it will be noted that the quantity and also the uniformity of flow of hydrogen are important factors in arsenic determination by the Gutzeit Method.

The better grades of commercial aluminum are uniform in purity, varying only between 99 and 99.5 per cent of aluminum. This fact alone gives aluminum a decided advantage over zinc. Uniformity of reactions in arsenic-testing is assured by the use of different samples of the better grades of aluminum.

The minerals cryolite, $AlF_3.3NaF$, and bauxite, $Al_2O_3.2H_2O$, now used in the Hall-Herault electrolytic production of aluminum, are said to be arsenic-free. Due to the nature of the Hall-Herault process there is no possibility of introducing arsenic during the fabrication of aluminum. As a result, this metal is easily obtained in an arsenic-free condition, a fact that has been proven experimentally.

Because a small amount of aluminum gives a good flow of hydrogen over a long period of time, only small quantities of the metal and acid are required for the arsenic tests. By using a small amount of these reagents the danger of introducing arsenic is again reduced.

During the first ten or fifteen minutes of a test, aluminum reacting with concentrated hydrochloric acid produces a desirable flow of hydrogen. However, the reaction subsequently becomes too violent. On the other hand, a less concentrated hydrochloric acid will not give the required flow of hydrogen for some time.

When making use of the aluminum-hydrochloric acid reaction only part of the arsenic present in a sample will be shown by the Gutzeit test. Similar but less marked results also will be obtained by using a very pure zinc. The reducing power of active hydrogen varies in proportion to the rate at which it is formed.

In order to stimulate the production of active hydrogen from aluminum, a number of salts of noble metals were tried. Stannous chloride was found to be very well adapted to this purpose. Upon its introduction, in a sufficient amount, into the aluminum-dilute hydrochloric acid mixture, the tin is precipitated and an aluminum-tin couple immediately forms. A steady production of active hydrogen is at once obtained and maintained during the entire time of the arsenic test. All of the arsenic introduced into such a reaction is entirely displaced.

In the presence of the aluminum-tin couple, active hydrogen is formed upon the surface of the tin instead of upon the surface of the aluminum. The aluminum dissolves and the tin remains in the metallic state, thus acting as a catalyst. Inasmuch as the better grades of commercial aluminum are very pure and of a consistent degree of purity, an equal formation of active hydrogen is assured at all times when adding a constant amount of stannous chloride to the aluminum-acid reaction. In this way, the difficulties arising from the use of metals, such as zinc, which contain variable amounts of metallic impurities, are eliminated.

Over the reducing effect of the hydrogen produced by the action of aluminum and acid there is also the cathodic reduction brought about by the formation of the aluminum-tin couple or short-circuited cell (Fig. 3). Aluminum and tin are fairly far apart in the electromotive series of the metals, so that an appreciable electromotive force is set up between them during the reaction. We may attribute the complete displacement of arsenic during the aluminum-tin hydrochloric acid reaction to this added cathodic reduction:

$$AsO_2^- + 6^- + 7H^+ = AsH_3 + 2H_2O \quad (2)$$

W. E. Lawson and W. O. Scott (3) proposed an electrolytic modification of the Guzeit Method for the determination of arsenic in body tissues. An electrolytic apparatus, with a current of 0.9 ampere at 5 volts, was used by these authors.

METHOD.

The Gutzeit Method in which aluminum and stannous chloride were used is as follows:

One gram of aluminum granular powder (about No. 20 mesh) is placed in the reduction bottle of the apparatus. Fifty (50) cc. of 5 per cent hydrochloric acid, containing 0.8 cc. of acid-stannous-chloride solution[1] are added. The solution to be tested is then introduced into the bottle and the stopper holding the exit tubes immediately inserted. The apparatus is placed in cold water in order to maintain a uniform temperature and a steady evolution of hydrogen. The reaction is allowed to proceed for one hour.

DISCUSSION.

This test is fundamentally the same as that of the U. S. P. X, with the exception that one Gm. of aluminum replaces 8 to 10 Gm. of zinc, and that 50 cc. of 5 per cent hydrochloric acid are used instead of 25 cc. of 20 per cent sulphuric acid. Eight-tenths of a cc. (0.8 cc.) of acid-stannous chloride is added instead of the 5 drops (0.25 cc.) prescribed in the U. S. P. X.

The apparatus is the same as that designated by the U. S. P. X, with the exception that a 100-cc. reduction bottle should be employed in place of the one of 50 cc. capacity.

The addition of the specified amount of stannous chloride is absolutely necessary. By using smaller quantities, or by its omission, the required formation of active hydrogen will not be obtained and the aluminum method of testing for arsenic will not give consistent results.

The aluminum must be in a uniform granular or so-called "powdered" form. If larger irregular pieces of the metal are used the production of active hydrogen will not be uniform because the tin may form a couple with the smaller particles only. This would lead to variable results.

The stains obtained by the aluminum-stannous-chloride method compare very favorably with those obtained when zinc is used. They are more regular, longer and somewhat more intense. One-half of a micro-milligram of As_2O_3 (equal to 0.4 micro-milligram of As[2]) gives an appreciable yellow band with the aluminum-stannous-chloride test.

C. R. Sanger and O. F. Black (4) developed a quantitative determination of arsenic by the Gutzeit Method in which one micro-milligram of As_2O_3 is set as the practical limit of delicacy. By treating their arsenic stains with hydrochloric acid they were able to increase the length and intensify the color of the stains. The sensitized mercuric paper used had a width of 4 mm. Smaller amounts of arsenic, as little as 0.08 micro-milligram of As_2O_3, could be detected by using 2-mm. bands and by a subsequent development with reagents such as hydrochloric acid, ammonia or auric chloride.

Three grams of uniformly granulated zinc and 15 cc. of dilute hydrochloric acid (1:6) were used by Sanger and Black to generate hydrogen.

In the method herein introduced the successful substitution of aluminum for zinc is the main concern.

Mercuric bromide paper of 3-mm. width, as prescribed by the U. S. P. X, was used in the present experiments. Relative to the delicacy of the introduced method

[1] Acid-stannous chloride is prepared by dissolving 40 Gm. of stannous chloride in 60 cc. of concentrated hydrochloric acid.

[2] 197.9 Gm. As_2O_3 = 149.9 Gm. As; 0.0000005 Gm. As_2O_3 = 0.000000378 Gm. As.

it may be said to compare favorably, under the same conditions, with Gutzeit tests in which zinc is employed.

EXPERIMENTAL PART.

Table I. Gutzeit Tests with Aluminum and Stannous Chloride.—The following are part of the experiments performed in connection with this work where the time of the reaction, the amount of aluminum granules, the quantity and strength of acid and the amount of stannous-chloride-acid solution are at or near the right proportions. These experiments serve to compare the length and color of stains using varying amounts of stannous-chloride-acid solution and of arsenic trioxide.

Time, hours.	Metal Al granules, Gm.	Acid HCl—50 cc. per cent.	Amount of $SnCl_2$ acid solution[1] cc.	Amount of As_2O_3[2] in mmgm.	Length mm. and color of stain.
1 1/2	2	4	0.4	...	.....
3	1	4	0.4	1.0	3, light yellow
1 1/2	1	4	0.4	2.0	4, deep yellow
1 1/2	1	5	0.6	1.0	6, yellow
1 1/2	1	5	0.6	2.0	7, deep yellow
1 1/2	1	5	0.6	3.0	10, orange
1 1/2	1	5	0.7	0.5	3, yellow
1 1/2	1	5	0.7	1.0	4, yellow
1 1/2	1	5	0.7	2.0	10, lemon yellow
1 1/2	1	5	0.7	3.0	10, orange
1 1/2	1	5	0.7	4.0	20, orange
1 1/2	1	5	0.8	2.0	10, orange

[1] See note page 640.

[2] Solution of As_2O_3 prepared as directed by U. S. P. X.

Table II. Experiments Showing Necessity of Adding Stannous Chloride to Aluminum in Order to Entirely Displace the Arsenic Introduced.—No reduction of the arsenic takes place in the absence of stannous chloride. Upon its addition in a sufficient quantity, however, reduction immediately proceeds and the arsenic is displaced entirely.

Time, hours.	Metal Al granules.	Acid HCl.	Amount of $SnCl_2$ acid solution.	Amount of As_2O_3 in mmgm.	Length mm. and color of stain.
1 1/2	1 Gm.	50 cc. 4%	.....	2	.....
1 1/2	Same reaction as above + fresh $HgBr_2$ strip		+ 0.4 cc. $SnCl_2$ sol.	..	3, deep orange

DISCUSSION OF METHOD.

(*a*) The addition of a sufficient amount of stannous chloride is absolutely necessary in order to displace all of the arsenic introduced into the reaction. Acid-stannous-chloride solution in amounts smaller than 0.7 cc. does not give consistent results.

(*b*) It is important that the aluminum to be used in arsenic-testing should be in a uniform "granular powder." Thin aluminum turnings, unless reduced to a uniform "granular powder," do not give consistent results. Thin polished aluminum sheets, although cut into small uniform pieces, do not give satisfactory arsenic-testing reactions. This is likely due to the very hard condition of the metal in that form, giving rise to a slow and uneven formation of the aluminum-tin couple.

(*c*) Careful observation of all the experiments in which the proper amount of aluminum-stannous chloride and hydrochloric acid has been used shows that most of the arsenic introduced into these reactions is displaced within one hour. In other words, a full intensity of the stain is obtained within one hour by the above

reaction. This is also the time required to obtain the full intensity of a stain by the U. S. P. X Method using zinc.

(*d*) Commercial aluminum "granular powder" contains arsenic. It appears that this arsenic is unintentionally introduced by its manufacturers at the time of granulating or "powdering" the metal. During this process the aluminum likely comes in contact with screens made of other metals that contain arsenic.

(*e*) A long period of time is required in arsenic-tests using aluminum when adding too small an amount of stannous chloride.

(*f*) A good arsenic-displacing reaction follows upon the use of one Gm. of aluminum "granular powder," 50 cc. of 5 per cent hydrochloric acid and 0.7 to 0.8 cc. of acid-stannous-chloride solution.

Since stannous chloride plays an important part in the aluminum method, it is recommended that a stannated hydrochloric acid be prepared for use in all of the arsenic tests. This stannated hydrochloric acid may be made by adding 1.6 cc. of acid-stannous-chloride solution to each 100 cc. of the 5 per cent hydrochloric acid. By the use of this stannated acid a uniform amount of stannous chloride will be added to each arsenic test and a greater uniformity of result will be obtained.

It is recommended that the aluminum which is to be used for arsenic-testing be a No. 20 mesh "granular powder." An arsenic-free aluminum (No. 20 mesh), especially suitable for arsenic-testing, can no doubt be made by shaving off transverse sections of aluminum wire having a diameter of approximately one millimeter. In this way, the possibility of arsenic-contamination in the process of reducing aluminum to a powder would be avoided.

Table III. Comparison of Flow of Hydrogen Produced by: (*a*) Aluminum. (*b*) Aluminum + stannous chloride. (*c*) Zinc.

(*a*) 1.00 Gm. Al gran. No. 20 mesh + 50 cc. 5% HCl. Temp. kept at 20° C.

(*b*) 1.00 Gm. Al gran. No. 20 mesh + 50 cc. 5% HCl + 0.8 cc. $SnCl_2$ acid sol. temp. kept at 20° C.

(*c*) 9.00 Gm. Zn pellets + 25 cc. 20% H_2SO_4 + 0.25 cc. $SnCl_2$ acid sol. temp. kept at 20° C.

Time, minutes.	(*a*) Vol. of H_2, liters.	(*b*) Vol. of H_2, liters.	(*c*) Vol. of H_2, liters.
10	3.5	10	5
20	8.0	20	22
30	12.0	32	34
40	17.5	44	46
50	21.5	56	58
60	25.5	66	70
70	29.5	76	82
80	34.0	86	92
90	38.5	96	102

The above are approximate measurements of the flow of hydrogen and serve only a comparative purpose. The apparatus employed consisted of a generating flask with thistle and delivery tubes, a pneumatic trough and one- and two-liter flasks. The generating flask was placed in water kept at 20° C.

The aluminum-stannous-chloride-acid reaction is seen to give as uniform a flow of hydrogen as in the method in which zinc is used. The catalytic effect of stannous chloride on aluminum during the reaction is clearly shown by the difference in the flow of hydrogen in (*a*) and (*b*).

GENERAL CONCLUSION.

The aluminum-stannous-chloride-hydrochloric-acid reaction has very good possibilities as a substitute for the zinc-sulphuric acid reaction in the Gutzeit test in that many difficulties met with in arsenic-testing by the present zinc-procedure are eliminated.

The Dutch Pharmacopœia V (5) has a Gutzeit arsenic-testing procedure in which is directed a method somewhat similar to that developed in this work. However, 0.2 Gm. of aluminum or 0.5 Gm. of zinc and 3 cc. of a one per cent acid-stannous-chloride solution are used in the Dutch Pharmacopœia. This method is claimed to detect one micro-milligram of arsenic (As). A much smaller amount (0.4 micro-milligram) is detectable by the method herein dealt with. It will be noted that the amount of stannous chloride used by the Dutch Pharmacopœia is much less in proportion to that employed in the method recommended. Because of the insufficient amount of stannous chloride used, the Dutch Pharmacopœial method, although using aluminum, is not likely to be as delicate as the method of procedure herein described.

BIBLIOGRAPHY.

(1) Evans, "Metals and Metallic Compounds," 1 (1923), 403.
(2) Treadwell Hall, Analytical Chemistry, Vol. II, 7th Edition.
(3) W. E. Lawson and W. O. Scott, *Journal of Biological Chemistry*, 64 (1925), 23–28.
(4) C. R. Sanger and O. F. Black, *Journal of the Society of Chemical Industry*, 36 (1907). 115–123.
(5) "Nederlandsche Pharmacopee," 5e, Ultgave (1926), 19.

THE ULTRAVIOLET TRANSMISSION OF LIQUIDS.

BY ELLERY H. HARVEY.

(*Concluded from the November 1930, number.*)

QUANTITATIVE DISTRIBUTION OF THE LIGHT.

Range Å.	Per cent total radiation.
3020 to 3600	2.0
3600 to 4800	18.5
4800 to 6000	9.3
6000 to 14000	16.5
14000 to 42000	22.1
42000 to 120000	31.6

Since the wave-lengths of the source of light approximate rather closely those received from the sun, and the intensity of the former is 4700 foot-candles while a bright Chicago day between the hours of 12 noon and 2 P.M. registers slightly in excess of 4000 foot-candles, the results reported may be considered somewhat comparable to sunlight exposure.

The basis of calculation is the number of milligrams of oxalic acid decomposed in two hours irradiation, using distilled water (or equally transparent media) in the quartz cell as the screen. All determinations gave the same value, *i. e.*, 140.4 mg. Water being transparent to ultraviolet of this wave-length, the value of 140.4 mg. was taken as 100% transmission and all results obtained calculated to

this base line. Obviously the absorbency of any liquid screen is the per cent transmission subtracted from 100.

PART 1. THE ULTRAVIOLET TRANSMISSION OF ESSENTIAL OILS.

Application of the method just outlined has been made in a study of the ultraviolet transmission of forty typical essential oils, a subject of very considerable interest because of its bearing on the larger practical problem of the photochemical decomposition of many pharmaceutical products improperly stored in glass. Significance of the data has been increased by using oils of known quality. Where no mention is made of this point in Column 2 of Table I, the oil was of the highest purity commercially available. The effect produced by the absorption of ultraviolet light on the physical properties is being determined and will be reported later.

TABLE I —ULTRAVIOLET TRANSMISSION OF ESSENTIAL OILS.

3-mm. layer of oil acting as screen to ultraviolet transmission.	Quality of oil used.	Milligrams of oxalic acid decomposed in two hours.	Percentage transmission based on water as 100%.	3-mm. layer of oil acting as screen to ultraviolet transmission.	Quality of oil used.	Milligrams of oxalic acid decomposed in two hours.	Percentage transmission based on water as 100%.
Bergamot		0.0	0.0	Fennel	U. S. P. IX	83.1	59.2
Cinnamon	Ceylon	1.2	0.9	Dillseed		83.1	59.2
Rose Geranium	Old sample	2.5	1.8	Tansy		83.1	59.2
Curcuma		3.1	2.2	Marjoram	Sweet cultivated	86.3	61.4
Pimento	U. S. P. IX	3.7	2.7	Juniper berries	U. S. P. IX	97.0	69.2
Rue		5.0	3.6	Coriander	U. S. P.	107.1	76.3
Clove	U. S. P. IX	5.0	3.6	Peppermint	U. S. P. IX	108.3	77.2
Lemongrass		6.3	4.5	Thyme	White	110.2	78.5
Estragon		11.9	8.5	Sage	Dalmatian	113.4	80.8
Limes	Handpressed	18.9	13.5	Cedarwood		113.4	80.8
Mace		19.5	13.9	Pepper, black		118.4	84.3
Celery seed		21.4	15.3	Anise	U. S. P. IX	119.7	85.3
Orange	U. S. P. IX	32.7	23.3	Lavender	U. S. P. IX	124.1	88.4
Spearmint	U. S. P.	39.0	27.8	Rosemary	U. S. P. IX	126.0	89.8
Caraway	U. S. P. IX	42.2	30.1	Nutmeg	U. S. P.	126.6	90.2
Citronella		47.8	34.1	Wintergreen	U. S. P. VIII	127.2	90.6
Lemon	U. S. P. IX	49.7	35.4	Camphor		129.7	92.4
Parsley		51.0	36.4	Cajeput	U. S. P. X	137.3	97.8
Eucalyptus	U. S. P. IX	51.0	36.4	Turpentine	Spirits	139.2	99.2
Limes	Distilled	52.3	41.7	Water	Distilled	140.4	100.0
Ginger	Pure	72.4	51.6				

DISCUSSION.

Assuming the application of the Grotthus generalization that only those rays of light which are absorbed produce chemical action, the results obtained indicate the widest possible variation with respect to possible photochemical changes among members of this group of naturally occurring substances. Beginning with bergamot, which absorbed the maximum and would therefore be subject to the greatest changes induced by ultraviolet, we have a continuing and rather regular decrease in absorption down to turpentine which absorbed practically no ultraviolet. How well this agrees with practical experience cannot be determined from

a perusal of the literature since quantitative measurements of this sort have not been recorded.

The application of this information is obvious. Adequacy of storage conditions must be in proportion to the known relative susceptibility of the oil to absorb ultraviolet, if the chemical changes produced by the latter are to be avoided. None of the oils possessing complete immunity, it would be necessary to store in glass, if the latter is to be used, known to be opaque to the passage of ultraviolet light. Of bottles found in the ordinary drug store, the writer[1] found that the colorless and blue glasses afforded but little protection, whereas dark brown glass bottles were quite opaque. The importance of the subject would justify a suitable statement in the Pharmacopœia to the end that the care taken to secure high quality would not be nullified by improper containers.

OTHER APPLICATIONS OF THE DATA.

The possible use of the method in connection with identification and evaluation through the development of "constants," so important in the field of organic analysis, has occurred to us. Until the effect of such variables as constitution, age, variety, geographical distribution, climatic and soil conditions and others, has been determined, discussion must be postponed. We are at this time merely pointing out the problem.

Based on the assumption that the principal constituent exerts the greatest influence on the ultraviolet transmission of the oil in which it is found, a brief excursion has been made into this field, using aromatic chemical constituents made by the same manufacturers from whom most of the oils were purchased.

TABLE II.—CALCULATED EFFECT THE PRINCIPAL CONSTITUENT HAS IN AFFECTING THE ULTRAVIOLET TRANSMISSION OF AN OIL.

Essential oil.	Ultraviolet transmission of the oil, %.	% of principal constituent normally present.	Ultraviolet transmission of principal constituent, %.	Calc. % of principal constituent.
Anise	85.3	80–90 anethole	96.0	12.0
Caraway	30.1	50–60 carvol	45.2	34.0
Cinnamon	0.9	65–80 cinnamaldehyde	5.9	85.0
Citronella	34.1	50–80 citronellal	95.1	65.0
Clove	3.6	80–95 eugenol	66.4	94.6
Eucalyptus	36.4	55–80 cineol	95.6	62.0
Fennel	59.2	50–70 anethole	96.0	39.0
Juniper berries	69.2	35 pinene	96.0	28.0
Lavender	76.3	30–55 linalyl acetate	96.4	21.0
Lemon	35.4	76–90 limonene	96.0	63.0
Lemongrass	4.5	68–85 citral	24.3	82.0
Orange	23.3	90 limonene	96.0	76.0
Wintergreen	90.6	98–99 methyl salicylate	90.6	99.0

The agreement between the figures in Column 3 and Column 5 is no better than expected keeping in mind that at least three important variables are involved:

1. Constituents other than the principal ingredient may absorb ultraviolet.
2. The oil examined may not have had the amount of principal constituent normally present.

[1] Harvey, *Am. J. Pharm.*, 100 (1928), 523–528.

3. The principal constituent may not have been of the same purity in the oil as that examined.

PART 2. THE ULTRAVIOLET TRANSMISSION OF FATTY OILS.

Two common examples of the part played by ultraviolet light in inducing changes in fatty oils are those collectively known as rancidity, in which, while being imperfectly understood, the accelerating influence of light is generally acknowledged, and secondly, those oxidations and polymerizations occurring in drying oils which form the basis of the paint industry. In so far as ultraviolet fairly comparable to that found in sunlight is absorbed and would tend to play a part in inducing chemical and physical changes, the data below in Table III has a direct practical value. It is recognized of course that while ultraviolet may be absorbed, it does not follow that it necessarily will produce chemical action.

TABLE III.—ULTRAVIOLET TRANSMISSION OF FATTY OILS.

3-mm. layer of oil acting as screen to ultraviolet transmission.	Quality of oil used.	Milligrams of oxalic acid decomposed in two hours.	Percentage of ultraviolet transmitted based on water as 100%.	3-mm. layer of oil acting as screen to ultraviolet transmission.	Quality of oil used.	Milligrams of oxalic acid decomposed in two hours.	Percentage of ultraviolet transmitted based on water as 100%.
Linseed	Boiled	3.7	2.7	Sperm		97.0	69.1
Whale		8.1	5.8	Cottonseed		126.6	90.2
Linseed	Raw	10.7	7.7	Corn		128.5	91.6
Rapeseed		15.1	10.8	Almond	U. S. P. IX	130.4	92.7
Chinawood		39.0	27.8	Olive	U. S. P. IX	135.4	96.5
Codliver	U. S. P. IX	57.3	40.9	Sesame	U. S. P. IX	136.0	96.9
Lard oil		77.4	55.2	Peanut		137.3	97.8
Soyabean	Old sample	78.1	55.7	Castor	U. S. P. X	138.6	98.8
Neatsfoot		96.3	68.6				

While the method is non-selective and gives the total effect of all constituents on ultraviolet absorption, it cannot help being noticed that unsaturation has a tendency to group the oils roughly in the table where absorption is most marked.

PART 3. THE ULTRAVIOLET TRANSMISSION OF CRUDE PETROLEUM OILS.

A set of typical crude oils was examined for ultraviolet transmission after dilution with carbon tetrachloride, the original oils being too dense. A somewhat greater dilution would have been desirable. These oils represent every important producing area, and data covering their physical characteristics have been prepared for publication.

TABLE IV.—ULTRAVIOLET TRANSMISSION OF CRUDE OILS.

3-mm. layer consisting of 1 cc. of crude oil added to 50 cc. CCl_4.	Milligram of oxalic acid decomposed in two hours.	Percentage of ultraviolet transmitted based on carbon tetrachloride as 100%.	3-mm. layer consisting of 1 cc. of crude oil added to 50 cc. CCl_4.	Milligrams of oxalic acid decomposed in two hours.	Percentage of ultraviolet transmitted based on carbon tetrachloride as 100%.
Kansas, Butler County, Augusta Field	0.0	0.0	Oklahoma, Creek County, Cushing Field	1.3	0.9
California, Los Angeles County, Santa Fe Springs Field	0.0	0.0	Louisiana, Acadia County, Jennings Field	3.7	2.6
			Russia, Baku	7.5	5.3

Wyoming, Hot Springs County, Hamilton Dome Field	0.0	0.0	Oklahoma, Carter County, Healdton Field	9.4	6.7
California, Kern County, Buena Vista Field	0.0	0.0	Wyoming, Hot Springs County, Grass Creek Field	12.6	8.8
Louisiana, Caddo County, Caddo Field	0.0	0.0	West Virginia, Lincoln County, Freeman District	21.4	15.2
Kentucky, Lee and Estell Counties, Pryce Station	0.0	0.0	Montana, Cat Creek	24.5	17.5
Ohio, Aggerton Station	0.0	0.0	Pennsylvania, Washington County	89.4	63.7
Texas, Limestone County, Mexia Field	0.0	0.0			

PART 4. ULTRAVIOLET TRANSMISSION OF MISCELLANEOUS LIQUID CHEMICALS.

A group of miscellaneous liquids have been included in Table V. The high absorption of ultraviolet by sulphur monochloride confirms previous work by the writer[1] where it was found that sunlight produced a generous evolution of hydrochloric acid.

TABLE V.—ULTRAVIOLET TRANSMISSION OF VARIOUS LIQUIDS.

Chemical.	Purity.	Percentage transmission based on water as 100%.
Acetic acid	Glacial	95.1
Alcohol, amyl	C.P.	97.6
Alcohol, ethyl	95%	94.5
Alcohol, methyl	C.P.	95.1
Carbon tetrachloride	Pure	100.0
Chloroform	U. S. P. X	95.6
Cresol	U. S. P. X	39.9
Creosote, beechwood	U. S. P. X	46.3
Ethylene glycol	Eastman practical	52.0
Ethyl lactate	Eastman practical	96.0
Glycerin	U. S. P. X	99.2
Lactic acid	U. S. P. 85%	96.0
Nitrobenzene	Commercial	3.2
Petrolatum, liquid	U. S. P. X	100.0
Sulphur monochloride	Merck	1.8

SUMMARY.

The historical development of the method for measuring ultraviolet by the decomposition of oxalic acid catalyzed with uranium salts has been traced. The technic has been modified to measure the absorption or transmission of liquids. Such a method has several advantages: it is quantitative, measures only the effect of the ultraviolet, is unselective and is practically unaffected by ordinary temperatures. Since the quality of the ultraviolet used is somewhat comparable to sunlight and assuming in general that the converse of the Grotthus generalization is true, the data has a certain practical significance in connection with such problems as the proper storage of substances of pharmaceutical interest.

The method has been applied to a group of essential, fatty and crude oils and to several liquid chemicals. Of the former the possibility of approximating the per cent of the principal constituent has been briefly discussed. By the use

[1] Harvey, Ph.D. Thesis, University of Wisconsin, 1926.

of proper filters the ultraviolet may be broken up into narrow monochromatic bands and the absorption of the various liquids for each wave-length studied. Such technic, while less refined, is much less expensive and elaborate than that required when using spectrophotometers, and would probably be satisfactory for studying certain aspects of the relation between ultraviolet absorption and chemical constitution.

DETERMINATION OF PHENOLPHTHALEIN IN PHARMACEUTICAL MINERAL OIL EMULSIONS.*

BY J. A. SERRALLACH AND R. J. OWEN.

Phenolphthalein in various combinations has been used for many years as a laxative in the treatment of constipation. One of the present most popular forms of administering it is as added to mineral oil emulsions in concentrations of from 0.3 to 1.4 per cent. A diligent search of the literature has revealed no method by which the phenolphthalein content in such preparations can be quickly and accurately determined.

Warren (1) has published analyses of several commercial mineral oil emulsions, one of which contained phenolphthalein. He determined roughly the phenolphthalein content in it. The procedure consisted in (*a*) adding ammonia and alcohol to the emulsion, (*b*) extracting the oil with ether and petrol-benzene, (*c*) evaporating the aqueous solution to dryness, (*d*) extracting the residue with cold water, (*e*) filtering to separate from emulsifiers insoluble in cold water, (*f*) precipitating the rest of the emulsifiers with alcohol, and (*g*) evaporating the alcoholic filtrate to dryness. This residue was called "sodium benzoate, soluble saccharin or phenolphthalein." It was recognized that through this procedure part of the phenolphthalein had gone into the ether-petrolbenzene solvent, due to the fact that ammonia does not hold the phenolphthalein entirely in the aqueous alcoholic solution. This method has two further disadvantages. Through the various steps in the analysis some of the phenolphthalein is lost and, as the concentration of the phenolphthalein is very low in the emulsion and fairly small quantities only can be taken for analysis, the error is considerable. Furthermore, the time required for such a determination is long.

The other methods which have been proposed for determining phenolphthalein are intended for pharmaceutical preparations not containing oil. Two of them are volumetric (2), (3). The others are gravimetric (3), (4). All of them take advantage of the solubility of phenolphthalein in either sodium hydroxide or organic solvents and were worked out for dry preparations (for instance, pills) containing no oil. In the case of mineral oil emulsions it is possible to follow somewhat any one of these methods by first breaking the emulsion by the addition of acid and heat treatment to hydrolyze the emulsifier, then neutralizing the acid, evaporating the aqueous part to dryness and extracting the phenolphthalein. Such a procedure is inaccurate and time consuming due to the numerous steps required. Also the

---

* Contribution from the Research Laboratory of Applied Chemistry, Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

extract that is finally weighed contains partly or completely the preservatives (salicylic acid, benzoate, etc.) and flavoring ingredients, etc., present in the original emulsion.

A colorimetric method has been developed for determination of phenolphthalein in oil emulsions which is quick and accurate and which might be used to advantage for controlling the phenolphthalein content of such preparations.

The procedure is as follows:

Ten grams of emulsion are weighed accurately and diluted in a volumetric flask to exactly 100 cc. with distilled water. Two cc. of this solution are then diluted to 25 cc. with alcohol, also accurately in a volumetric flask. A standard solution of phenolphthalein is prepared by dissolving 10 milligrams in 100 cc. of 96% U. S. P. Alcohol. One-half cc. of each of the alcoholic solutions of known and unknown phenolphthalein concentration are accurately measured with a fine, graduated 1-cc. pipette and mixed in two separate 20-cc. portions of $N/100$ NaOH in two 25-cc. Nessler tubes of the same diameter. The tubes are then placed in a colorimeter similar to the ones used with standard p_H determination sets. The arrangement in the colorimeter is as follows:

CONTENTS OF TUBES.

Front row	*a.*	Unknown solution of phenolphthalein	*b.*	Known solution of phenolphthalein
Back row	*c.*	Distilled water	*d.*	20 cc. distilled water + 1 cc. of unknown solution.

The colors of the known and unknown phenolphthalein solutions are then brought to match; in this case the difference is not large, by diluting the stronger of them with a few cc. of $N/100$ NaOH and stirring with a glass rod. If the color difference is considerable, however, new mixtures of the unknown solution with the $N/100$ NaOH solution are made with more than $^1/_2$ cc. or less of the alcoholic solution, depending upon whether the solution under examination is stronger or weaker. The solution that is more pink is then diluted as above with $N/100$ NaOH to bring both solutions to match exactly in color. If the solutions still cannot be brought to match by diluting the stronger one with $N/100$ NaOH, a new, more diluted solution or stronger is made from the unknown solution, and the procedure repeated as above described. The amount of phenolphthalein present can then be calculated from the dilutions.

The table below shows results obtained with synthetic mixtures prepared by making mineral oil emulsions and adding the phenolphthalein in a manner similar to that used by manufacturing concerns.

TABLE I.

Phenolphthalein added.	Phenolphthalein found.
1.32%	1.36%
1.32	1.34
0.48	0.46
0.48	0.45

The phenolphthalein content of a few mineral oil emulsions on the market was also determined by this method. The results were:

Commercial sample.*	Amount claimed.	Amount found.
1	0.48 per cent	0.50 per cent
2	0.32	0.28
3	?	0.32
4	1.45	1.45

* Preparations 2, 3, 4 contain agar-agar as emulsifiers, Preparation 1 contains the mucilage of the seaweed Irish Moss.

The comparisons should always be made in fresh solutions, because the color of the diluted alkaline phenolphthalein solutions slowly fades through the action of CO_2 from the atmosphere.

LITERATURE CITED.

(1) Warren, "Reports of the Chem. Lab. of the Am. Med. Assoc.," 17, 18, 20 (1924–1925).

(2) Zotier, *Bull. soc. chim.* [4], 7 (1910), 993–995.

(3) Kollo, *Apoth. Ztg.*, 24, 283 (four different methods), *Pharm. Praxis*, 7 (1908), 341–344.

(4) Rosenberger, *Chem.-Ztg.*, 54 (1930), 345.

THE SAMPLING OF OPIUM.

BY FREDERIC ROSENGARTEN.

The Testing or "Assay" of Opium is a subject that has received and is receiving considerable attention. From time to time many discussions on this subject have taken place and more are impending. As little or nothing has been said about the practical aspects of sampling the drug, the writer's experience may prove of some service to those interested.

No matter how consistent the method of testing may be, results cannot be correct if the sample under observation does not truly represent the lot of opium in question. Not only does every piece of opium vary from all the other pieces in a shipment, but each piece varies more or less in itself, from circumference to its center. This is particularly true of opium originating in Mediterranean countries. Such descriptions as Persian Opium, which are reputed to be packed for shipment from bulk that has been more or less thoroughly mixed, are more uniform.

The writer observed the collection of opium, during the harvesting season, in Asia Minor some thirty years ago, and from personal observation it gives him pleasure to confirm the procedure in connection with the collection of the juice, as described in "Flückiger's Pharmacographia," published in London, 1874. He should add that local merchants, as well as shippers, are skilled in the "grading" of opium, a process not based on any scientific method, but upon the appearance and consistency of the drug. As reliable shippers usually "grade" their shipments so that every chest in a shipment contains the same proportion of good, medium, indifferent and poor pieces, the sampling of such uniform shipments is much simplified. On the other hand when shipments are packed in a haphazard manner it may become necessary to dry and powder the entire shipment, in order to obtain a representative sample after the powdered drug has been thoroughly and uniformly mixed in a mechanical mixer. Notice must be taken of the fact that if opium is abused during the drying process the percentage of morphine will be diminished. The drug should not be overheated. The most desirable method of drying is to employ a vacuum dryer.

If inspection indicates that every chest of opium in a shipment is quite uniform it is advisable to set aside one chest out of every five for the purpose of sampling. According to this procedure one chest out of a shipment of five chests would be withdrawn for sampling, two out of a shipment of ten, etc., etc.

A quarter section is cut from each piece of opium contained in the sample chest. Ordinarily opium is packed in chests of 150 lbs. or 160 lbs., and the sample will amount to approximately 40 lbs., which is then thoroughly mixed in a Werner & Pfleiderer mechanically driven dough-mixer until a completely uniform mass is produced. As considerable heat, involving loss of moisture, is developed during the mixing, allowance should be made for such loss.

Samples for analyses may then be drawn from the homogeneous mass. These should be at once packed in hermetically sealed tins or bottles, thus precluding a further loss of moisture.

In order to check this method of sampling I have at intervals carried out the above procedure and then have dried the entire lot of opium in question, milled and mixed it and have compared the results (after allowing for the loss of moisture in drying) of the tests with the tests of the original "Gum." The tests were remarkably uniform, and confirm, to my mind, the satisfactory results of the above procedure.

Occasionally lots of opium have been received, which in addition to not being "graded" have been so "crumby" through age or other reasons, that proper sampling of the drug in its natural condition was precluded. Under such circumstances the entire lot was dried, milled and mixed for the purpose of obtaining uniform samples.

Persian Opium from reliable shippers, packed in bricks, wrapped in waxed paper, is remarkably uniform. It may be sampled by perforating each piece in a case, one case out of five of the same mark, by means of a cork borer of about $^1/_4$-inch diameter. The samples thus obtained must, of course, be thoroughly mixed (by hand or in a small power mixer) under the same precautions described earlier in this article, before they are sent to the laboratory for test.

THE STANDARDIZATION OF VOLUMETRIC SULPHURIC ACID SOLUTION.*

BY JOSEPH L. MAYER.

On page 508, the U. S. Pharmacopœia, after stating how volumetric sulphuric acid solution should be prepared says "ascertain its exact strength by titration against freshly standardized normal sodium hydroxide, methyl orange T. S. being used as indicator. The strength may also be ascertained and adjusted after titration against an accurately weighed amount of reagent anhydrous sodium carbonate. It may also be standardized gravimetrically by precipitation and weighing as barium sulphate."

On page 505, the U. S. Pharmacopœia, directs that the sodium hydroxide solution which is employed to standardize the sulphuric acid be standardized as follows:

"Determine its strength by titration against a hot solution of an accurately weighed quantity of reagent potassium bitartrate."

---

* Read before the New York State Pharmaceutical Association meeting, June 1931.

The U. S. Pharmacopœia without directing how these methods should be applied standardizes the sulphuric acid by the three following methods:

1. Sodium hydroxide solution which has been standardized against potassium bitartrate.
2. Anhydrous sodium carbonate.
3. Precipitation as barium sulphate.

These three methods will, respectively, be referred to as the "potassium bitartrate method" the "sodium carbonate method" and the "barium sulphate method."

In order to determine how nearly the results by these methods agreed I made the following experiments, employing a sample of what was approximately $N/10$ sulphuric acid.

(*A*) Reagent potassium bitartrate was dried in a Freas electric oven at 120 degrees until the weight was constant, after which weighed quantities were dissolved in boiling water and these solutions employed to standardize the sodium hydroxide solution, using phenolphthalein indicator. The sodium hydroxide was freshly prepared from a saturated solution of sodium hydroxide which was free from CO_2.

This freshly prepared standardized sodium hydroxide solution was used in the presence of methyl orange indicator to standardize the sulphuric acid solution which by this method indicated a $N/10$ factor of 0.998760.

(*B*) Reagent anhydrous sodium carbonate was dried in a Freas electric oven at 105 degrees until the weight was constant, after which a definite amount was weighed in a 100-cc. flask with a glass stopper, and enough water added to measure 100 cc. Ten-cc. portions of the solution were placed in Erlenmeyer flasks, a drop of methyl orange added to each and the sulphuric acid being standardized slowly added with constant stirring until the end reaction was reached. The $N/10$ factor was 1.00135.

(*C*) Fifty-cc. portions of the acid were measured into 250-cc. beakers, about 50 cc. of H_2O added, the material heated to boiling on the hot plate and an excess of 10% barium chloride solution added from a 10-cc. pipette, drop by drop, after which the material was heated to boiling for five minutes, placed on the steam-bath for five hours, the supernatant liquid poured through a Gooch crucible the precipitate transferred with 30 cc. of boiling water and the crucible and contents washed with boiling water, until free from chlorides, dried, ignited and weighed. From the weight of $BaSO_4$ the $N/10$ factor of the acid was calculated and found to be 1.00175.

The simplest method of standardization of volumetric sulphuric acid solution is precipitation as barium sulphate and since "Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists" only recognizes it, the U. S. Pharmacopœia should do likewise and in the interest of uniformity abandon the others.

SUMMARY.

1. Sulphuric acid volumetric solution was standardized by the three methods official in the U. S. Pharmacopœia.

2. The $N/10$ factor indicated by the Potassium Bitartrate method was—0.998760.

The $N/10$ factor indicated by the Anhydrous Sodium Carbonate method was—1.00135.

The $N/10$ factor indicated by the Barium Sulphate method was—1.00175

3. In view of the fact that the barium sulphate method is the only one recognized by the Association of Official Agricultural Chemists, is accurate and easily applied, it should be the one official in the United States Pharmacopœia.

RESEARCH AND ANALYTICAL LABORATORY,
LOUIS K. LIGGETT CO.,
NEW YORK.

THE USE OF BARIUM OXIDE FOR ALCOHOL DEHYDRATION.*

BY B. L. MEREDITH AND W. G. CHRISTIANSEN.

The purpose of this work was to investigate the claim of Smith (1) that BaO may be considered a commercial possibility for the dehydration of alcohol. There are many commercial operations in which an alcohol of 97.5% (by weight) may be used, and it is from the near-absolute angle that we have approached the problem of dehydration. The author cited above refluxed a liter of 93% alcohol (by weight) with 500 Gm. of BaO for two hours and obtained a product, in one instance, as high as 99.61%. He records no assay for the BaO.

In the following experiments the 190-proof alcohol assayed 91.90% (by weight) by the specific gravity method. The BaO, which was obtained from the same company (2) which supplied the above experimenter, was not assayed. Instead of tabulating our results, the successive experiments are recorded, because major changes were made in experimental procedure and because it is desirable to comment on each experiment in turn.

EXPERIMENTAL PART.

Experiment A.—One liter of alcohol was refluxed with 500 Gm. BaO for 2 hours at a bath temperature of 83–85° C. The alcohol was then distilled off, using a Hempel trap, and 750 cc. distillate was obtained. An hour and a half was consumed in the distillation, and the bath temperature at the end had been brought to 96° C. Vacuum was then applied and a second fraction of 75 cc. was obtained.

TABLE I.

	Yield, cc.	Sp. gr. at 20° C.	Per cent alcohol by weight.
First fraction	750	0.79316	98.75
Second fraction	75	0.79424	98.39

The liter of alcohol contained 65.8 Gm. of water, and to hydrate 500 Gm. of 95% BaO only 56.1 Gm. of water is required. However, $Ba(OH)_2$ is known to hold an extra molecule of water of crystallization very tenaciously, and its further dehydrating power was expected to operate in our favor. Assuming that, at normal pressure, and at the boiling point of alcohol, the entire liter of alcohol had been dehydrated to the extent of the first 750-cc. fraction, the BaO had removed only 56.9 Gm. of water. This does not indicate the formation of much $Ba(OH)_2.H_2O$. These indications, however, in all probability do not conform with the facts, since $Ba(OH)_2$ paradoxically possesses a greater affinity for water than BaO. Hence

* Scientific Section, A. PH. A., Baltimore meeting, 1930.

an equilibrium was reached between the chief components: BaO, $Ba(OH)_2$, $Ba(OH)_2.H_2O$, C_2H_5OH and $C_2H_5OH.H_2O$. We believed that the dehydrating power of $Ba(OH)_2$ would become operative when smaller proportions of BaO were used, and further experiments were carried out.

Experiment B.—This experiment was carried out in exactly the same manner as *Experiment A* but only half (250 Gm.) the weight of BaO was used to 1 liter of alcohol.

TABLE II.

	Yield, cc.	Sp. gr. at 20° C.	Per cent alcohol.
First fraction	900	0.79675	97.57
Second fraction	38	Sp. gr. not determined.....	

If no $Ba(OH)_2.H_2O$ had been formed, only 28 Gm. of water would have been removed, but we find that the BaO had taken up 47.2 Gm. indicating that the $Ba(OH)_2$ was hydrated to $Ba(OH)_2.H_2O$ to the extent of 68.6%. The excellent yield obtained constitutes a recovery of *97.8%* of the C_2H_5OH, as against *86.5%* in Experiment A.

Experiment C.—Again the BaO was halved, but this time after refluxing the liter of alcohol with 125 Gm. BaO, the reaction flask was allowed to cool ($5^1/_2$ hours) and the alcohol filtered off from the hydrated BaO before distilling. After this had been distilled, the residue which had been filtered off was reintroduced into the first flask and the remainder of the alcohol distilled off under vacuum.

TABLE III.

	Yield, cc.	Sp. gr. at 20° C.	Per cent alcohol.
First fraction	810	0.80512	94.66
Second fraction	60	0.80055	96.25

In this experiment 664 Gm. C_2H_5OH obtained constitutes a recovery of 88.9% of the original C_2H_5OH content of the aqueous alcohol used. The water extracted calculates to 23.7 Gm. which means a hydration of 69.3% of the $Ba(OH)_2$ to $Ba(OH)_2.H_2O$. This is practically the same hydration obtained in Experiment B, and we are therefore reasonably safe in concluding that under these conditions there is formed no $Ba(OH)_2.3H_2O$ or any hydrate higher than the mono.

Experiment D.—Distillation under vacuum, at a low temperature seemed to produce better results, hence a second experiment using only 125 Gm. BaO was tried. The alcohol and the BaO (this time finely ground) were refluxed together for three hours, then cooled to 40° C. and distilled under vacuum, the receiver being chilled with ice and salt. The vacuum was approximately 28.5 inches, and toward the end of the distillation the temperature of the bath had been raised to 65° C.

Yield 750 cc., sp. gr. 0.80411, corresponding to an alcohol content of 95.02%.

From these figures it is found that a recovery of 573 Gm. C_2H_5OH was obtained, which is a yield of 76.7%. Calculation also reveals that the water held by the BaO (based, as before, on a 100% recovery) was 26.6 Gm. which would indicate a 90% formation of $Ba(OH)_2.H_2O$. This greater efficiency of the BaO is more than offset by the inefficiency of condensation of the distillate.

Experiment E.—Since the dry barium hydroxide residue had caked to some extent in all the preceding experiments, mechanical agitation was now used in

duplicating *Experiment B*, which was the most promising of the first four. Two hundred and fifty grams BaO were ground to pass a 16-mesh sieve and were added to 1 liter of the same lot of alcohol used in all the foregoing work. A mechanical agitator with mercury seal and side-neck for reflux (and subsequently for distillation condenser) was used and agitation was continued not only for the two hours of refluxing, but during distillation until the residue became pasty. The last 26 cc. of distillate was taken, using vacuum, after the removal of the agitator.

TABLE IV.

	Yield, cc.	Sp. gr. at 20° C.	Per cent alcohol.
First fraction	918	0.79616	97.75
Second fraction	26	Sp. gr. not determined	

This means that out of a possible 747 Gm. C_2H_5OH were obtained 734.6 Gm., a yield of 98.6%. Also, the same calculations used on the other four experiments shows the BaO to have combined with 48.6 Gm. of water, or that 73.6% of the $Ba(OH)_2$ was hydrated to $Ba(OH)_2.H_2O$.

CONCLUSIONS.

An "absolute" alcohol of 97.5% or over may be obtained by using 250 Gm. of commercial BaO per liter of alcohol as low as 91.9% ethyl alcohol (by weight).

A yield of 94% by volume, which is an actual yield of 98% of the C_2H_5OH originally present, may be obtained.

Using less than 250 Gm. BaO per liter gives a product assaying less than 97.5%, while more than 250 Gm. reduces the yield.

Vacuum distillation increases the efficiency of the BaO but greatly decreases the yield. It should, however, be applied to the residue after the regular distillation (and after cooling somewhat), since the yield may be increased 3–4% thereby.

REFERENCES.

(1) *Ind. & Eng. Chem., Analytical Ed.*, Vol. 1, No. 2, page 72.
(2) J. H. R. Products Co., O. Willoughby.

RESEARCH DEPARTMENT, CHEMICAL AND PHARMACEUTICAL LABORATORIES,
E. R. SQUIBB & SONS, BROOKLYN, N. Y.

OLIVE OIL—FLUORESCENCE IN ULTRAVIOLET LIGHT.*

BY J. LEWIS DEUBLE AND R. E. SCHOETZOW.

A number of writers[1] have discussed the fluorescence of various types of olive oil when viewed under the ultraviolet light. Some months ago we had an opportunity to examine some samples of olive oil which we believe to be authentic. Our results corroborating those already published may be of interest. The samples examined were:

I. Pure Virgin Italian Olive Oil.
II. Pure Virgin Spanish Olive Oil.
III. Pure Virgin Tunisian Olive Oil.

(All three oils are of first pressing and are unfiltered.)

---

* Scientific Section, A. PH. A., Rapid City meeting, 1929.

[1] See Bibliography at end of article.

IV. Pure virgin Tunisian Olive Oil of second pressing, unfiltered.
V. Pure refined Olive Oil, filtered.
VI. Refined Olive Oil extracted with carbon disulphide.

These oils were certified by the Laboratorio Chimico of the Instituto Sperimentale per l'Olivicoltura e l'Oleificio of Imperia, Italy. These oils were examined under a 110-volt Cooper Hewitt Uviarc with a Corning G. 586 A. W. Filter. The three virgin oils of the first pressing exhibited a lemon-yellow fluorescence under the ultraviolet light, while the olive oil of the second pressing had a brownish fluorescence. The refined olive oils both had a bluish fluorescence.

We then made various mixtures of the refined olive oils with the virgin olive oils in order to see how small a quantity of refined oil could be detected. The fluorescent colors of the mixtures were between the fluorescent colors of the separate oils. The blue fluorescence of the refined oils was more persistent and easily seen when mixed with increasing amounts of the brown fluorescent virgin oil than with the lemon-yellow fluorescent virgin oils. With the virgin oils exhibiting a lemon-yellow fluoresence, we could not detect much less than 20% of refined oil. In the case of the virgin oil of the second pressing we could detect the presence of 10% of refined oil.

It appears then, that the ultraviolet light is of value in the examination of olive oil. An opinion as to the nature of the oil whether it is virgin, refined or a blend of the two can be obtained from the fluorescence.

BIBLIOGRAPHY.

Band and Courtois, *J. Pharm. Chim.*, 7 (1928), 215.
Nasini and de Cori, *P. Ann. Chimie.*, Appl. 19 (1929), 46.
Musher, *Oil and Fat Ind.*, 5 (1928), 356.
Bureau of Standards, *J. Franklin Institute*, 204 (1927), 865.
Apostollo and Mangini, *Ind. Olii Min. e Grassi*, 8 (1928), 105.

ANALYTICAL DEPARTMENT OF THE BROOKLYN LABORATORIES,
E. R. SQUIBB & SONS.

THE TWENTY-FIFTH ANNIVERSARY OF THE FEDERAL FOOD AND DRUGS ACT.

Dr. James H. Beal in summarizing the work of the AMERICAN PHARMACEUTICAL ASSOCIATION in an address before its Diamond Anniversary meeting said in part:

"The AMERICAN PHARMACEUTICAL ASSOCIATION not only substantially re-created and insured the continuation of the United States Pharmacopœia as an independent publication, and almost wholly created the National Formulary, but when the Federal Food and Drugs Act was enacted in 1906, it succeeded in securing the adoption of these two volumes as the standards of that Act, an example which has been followed in turn in all State food and drug enactments.

"In thus securing the adoption of the Pharmacopœia and National Formulary as legal standards, the ASSOCIATION rendered one of the greatest possible services to the whole of pharmacy, and saved it from the menace of constantly changing standards of bureaucratic creation....."

AMERICAN CHEMICAL SOCIETY.

Eighty-second meeting of the American Chemical Society will be held at Buffalo, August 30th to September 4th. All papers for general, divisional and regional meetings, or meetings of local sections, are the property of the American Chemical Society unless released by the Society's editors. Abstracts of papers should accompany all titles when sent to the secretaries of the various divisions.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

All articles in these lists will be presented in abstract form in the bound volumes of the Year Book, which is issued annually. Those desiring abstracts immediately can obtain them for a fee of one dollar each by communicating with A. G. DuMez, University of Maryland, School of Pharmacy, N. W. cor. Lombard and Greene Sts., Baltimore, Maryland.

PHARMACOPŒIAS AND FORMULARIES.

Oberg, O.
Silver gelatose suppositories prepared according to the Swedish Pharmacopœia
Farm. Revy., 30 (1931), 279

Sub-Committee on Chemistry
Report of the Sub-Committee on Chemistry of the Commission for the Revision of the British Pharmacopœia
Pharm. J., 126 (1931), 480, 501, 522

PHARMACEUTICAL PREPARATIONS.

Abraham, A. C.
Syrup of ferric phosphate of the British Pharmaceutical Codex
Pharm. J., 126 (1931), 438

Breddin, H.
Preparation of oleoresin of male fern by diakolation
Pharm. Ztg., 76 (1931), 640

Goris, A., and Fourmont, J.
Spontaneous alteration of solutions of heroin hydrochloride
Bull. sci. pharmacol., 33 (1931), 273

Klatt, F.
Assay of tincture of iodine for iodine and potassium iodide
Apoth.-Ztg., 46 (1931), 706

Kroeber, Ludwig
Fluidextract of gentian
Pharm. Zentralh., 72 (1931), 354

Trunkel, Hans
Decrepitation of pills
Pharm. Ztg., 76 (1931), 567

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS.

Duncan, W. S., and Crosby, E. H.
Thallium poisoning following prolonged use of a depilatory
J. A. M. A., 96 (1931), 1866

Greenbaum, Sigmud S., and Schamberg, Jay Frank
Reports of cases of thallium acetate poisoning following the use of a depilatory cream
J. A. M. A., 96 (1931), 1868

Macht, David I., and Barba-Gose, J.
Two new methods for pharmacological comparison of insoluble purgatives
Jour. A. Ph. A., 20 (1931), 558

Mattis, H., and Mandrysch, E.
Effect of oral administration of iron on the animal organism
Arch. Pharm., 269 (1931), 289

Neely, James S., and Davy, Edward D.
Anthelmintic properties of pepo, U. S. P. and cucurbita pepo
Jour. A. Ph. A., 20 (1931), 555

Nyiri, William, and Dubois, Louis
Toxicity of colloidal iodine
Jour. A. Ph. A., 20 (1931), 546

Peabody, William A.
Iodine retention and distribution in rabbits
Jour. A. Ph. A., 20 (1931), 551

Saunders, Felix, *et al.*
Adsorption of physiologically active substances by activated charcoal
J. Pharmacol. & Exper. Therap., 42 (1931), 169

Seevers, M. H., and Tatum, A. L.
Chronic experimental barbital poisoning
J. Pharmacol. & Exper. Therap., 42 (1931), 217

Wulp, George A., and Nelson, Erwin E.
Biological assay of ergot by means of paralysis of renal vasomotors
J. Pharmacol. & Exper. Therap., 42 (1931), 143

Young, A. G., and Taylor, F. H. L.
Effect of sodium thiosulphate on mercury poisoning
J. Pharmacol. & Exper. Therap., 42 (1931), 185

CRUDE DRUGS.

Rin, J. O.
Evaluation of cantharides
Anal. Fis. Quim., 29 (1931), 164; through *J. Soc. Chem. Ind.*, 50 (1931), 514

Roark, R. C.
Genuine derris root containing no rotenone
J. Econ. Entomol., 24 (1931), 329; through *J. Soc. Chem. Ind.*, 50 (1931), 514

Speight, W. J.
South Africa's medicinal herbs
Pharm. J., 126 (1931), 478

ALKALOIDS, GLUCOSIDES, ETC.

Reyes, Feliciana R., and Santos, Alfredo Co.
Isolation of anonaine from Anona squamosa
Philippine J. Sci., 44 (1931), 409; through *Chem. Abstr.*, 25 (1931), 2807

Rosenthaler, L.
Contribution to the microchemistry of mescaline
Pharm. Ztg., 76 (931), 653

Van Zijp, C.
Contribution to the microchemistry of artemisin and santonin
Pharm. Weekbl., 68 (1931), 526

ESSENTIAL OILS.

Duncan, K. J., and Short, W. F.
Hydrocarbon constituents of Japanese peppermint oil
J. Soc. Chem. Ind., 50 (1931), 198T

Munch, James C., and Reindollar, William F.
Statistical study of the pharmacopœial constants of chenopodium oil
Jour. A. Ph. A., 20 (1931), 564

Pasteur, Felix
Some properties of fenchone
Bull. sci. pharmacol., 33 (1931), 279

Peyer, W., and Iffinger, H.
Determination of essential oil in pine needle preparations
Apoth.-Ztg., 46 (1931), 740

Sherwood, I. R., and Short, W. F.
Camphor and camphor oil from cinnamomum camphora grown in New Zealand
J. Soc. Chem. Ind., 50 (1931), 195T

Shinosaki, Y., and Nagasawa, T.
Constituents of the high-boiling fractions of Japanese peppermint oils
J. Soc. Chem. Ind., Japan, 33 (1930), 420B; through *J. Soc. Chem. Ind.*, 50 (1931), 514

OILS, FATS AND WAXES.

Funcke, Yngve
Contribution to the study of the vitamines of the oil of the livers of codlings
Farm. Revy, 30 (1931), 317

Taffel, A., and Revis, C.
Determination of rancidity in oils and fats
J. Soc. Chem. Ind., 50 (1931), 87T

INORGANIC CHEMICALS.

Cuny, L.
Volumetric estimation of copper by means of the Spacu reaction
J. pharm. chim., 13 (1931), 513

Siegert, M.
Examination of Ferrum reductum and Ferrum pulveratum
Pharm. Ztg., 76 (1931), 624

ORGANIC CHEMICALS.

Brand, K., and Westerburg, G.
Synthesis of 4-oxy-3-methoxy-1-benzol
Arch. Pharm., 269 (1931), 326

Christiansen, W. G., and Jurist, A. E.
Preparation of 3-carbamido-4-hydroxy-phenylarsonic acid
Jour. A. Ph. A., 20 (1931), 544

Dumont, P., and Dehlerck, A.
Studies on the identification of percaine, a new local anesthetic
J. pharm. Belg., 13 (1931), 397

Gadamer, J., and Westerburg, G.
Examination of light beechwood creosote
Arch. Pharm., 269 (1931), 307

Germuth, Frederick G.
Hydrolysis of acetylsalicylic acid in ethanol, glycerol and ethanol-glycerol solutions
Jour. A. Ph. A., 20 (1931), 568

Krczil, Franz
Evaluation of medicinal charcoal by the methylene blue method of the German Pharmacopœia
Apoth.-Ztg., 46 (1931), 626

Levine, Victor E.
Color reactions in the system phenol-aldehyde-acid
Jour. A. Ph. A., 20 (1931), 537

Ohara, K., and Kondo, Y.
Ash pictures of important leaf drugs
Arch. Pharm., 269 (1931), 292

Pfau, Ernst
Constituents of gums. I. Gum arabic
Apoth.-Ztg., 46 (1931), 725

Sabetay, Sebastien, and Sivadjian, Joseph
Use of benzylic potash for the estimation of the acetyl group in substituted acetamides
J. pharm. chim., 13 (1931), 530

Schulte, M. J.
Quantitative estimation of hexamethylenetetramine in various combinations
Pharm. Weekbl., 68 (1931), 485

Seidell, Atherton, and Birckner, Victor
Experiments on the isolation of the antineuritic vitamin
J. Am. Chem. Soc., 53 (1931), 2288

Sivadjian, J.
Color reactions of some medicaments
J. pharm. chim., 13 (1931), 528

A METHOD FOR THE QUANTITATIVE ESTIMATION OF CHLOROFORM IN CHLOROFORM LINIMENT.*

BY ALFRED C. ANDERSEN.

Several methods are given in literature for the estimation of chloroform in Chloroform Liniment. The simplest method is to distil the chloroform into water (1). Sulphuric acid is then added to the distillate causing the chloroform to settle out, thus enabling one to read the quantity of chloroform directly. Several processes are also given in which the chloroform is decomposed by alcoholic potassium hydroxide into potassium chloride, potassium formate and water (2). The chloride is then determined either volumetrically or gravimetrically.

The appearance of this process in several stages of development in literature (2) and in textbooks (2) of Chemistry excited the curiosity of the investigator with subsequent experimentation. A process of this nature was developed which proved to be fairly satisfactory. The process does not differ greatly from that offered by another investigator (2) except in the apparatus used. According to literature, investigators have used pressure bottles and reflux condensers in order to decompose the chloroform. The author used a U condenser (diagram) which combined the idea of a pressure bottle and reflux condenser. This piece of apparatus was found to be the most satisfactory to drive the reaction to completion, and to give results with the minimum error. The reflux condenser is unsatisfactory because it permits small amounts of chloroform to volatilize off. The pressure bottle was also found to be unsatisfactory because of the air space between the surface of the liquid and the stopper in which a great deal of chloroform may exist in the vapor state and escape decomposition.

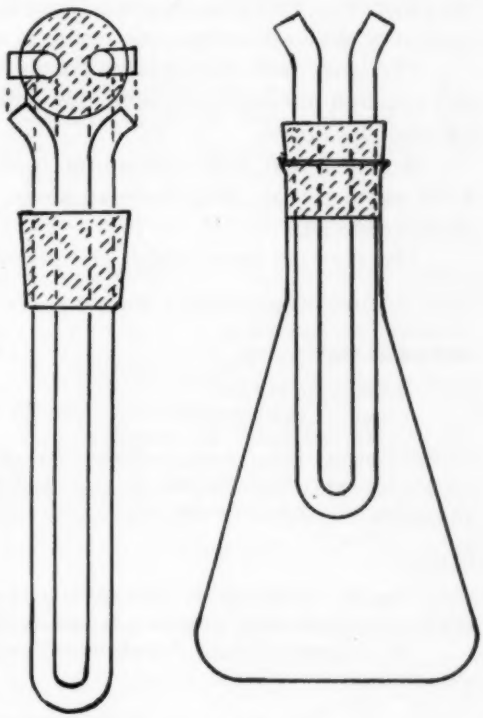


Fig. 1.

The process developed is briefly as follows:

$$CHCl_3 + 4KOH \longrightarrow 3KCl + HCOOK + 2H_2O.$$

Five cubic centimeters of Chloroform Liniment are accurately measured into a hard glass test-tube of about eighty cubic centimeters capacity, containing 50 cc. of alcoholic potassium hydroxide (12 Gm. of KOH U. S. P. dissolved in 10 cc. of boiling distilled water with subsequent addition of ethyl alcohol to make the volume 100 cc.). A U condenser (diagram) is at once inserted into the test-tube. The condenser should be long enough to extend a half inch below the surface of the liquid in the test-tube. Connect the condenser with the cold water supply,

* Section on Practical Pharmacy and Dispensing, A. PH. A., Rapid City meeting, 1929.

wire the stopper securely into the tube, immerse the test-tube in a water-bath and heat at the temperature of boiling water for one-half hour.

After the reaction has ceased, cool the contents of the tube and pour into a 600-cc. beaker. Rinse the condenser and tube with hot distilled water and add the washings to the liquid in the beaker. Then add 100 cc. of distilled water to the beaker and heat at a temperature below 100° C. for one-half hour in order to remove the alcohol. Then add another 100 cc. of distilled water and boil for 15 minutes to decompose the potassium formate and free the liquid of all volatile material. Cool and add concentrated nitric acid in excess. The chlorides may be determined volumetrically by Volhard's method (4) or gravimetrically by precipitation with silver nitrate.

It was found advisable to work on aliquot portions of the liquid containing the chloride. This process was repeatedly tried, using a pressure bottle and reflux condenser, but with very poor results.

The work with this process convinced the investigator that it was too slow and required too much technique for ordinary use, so a simpler process was sought for and developed.

It was found that chloroform reduces Fehling's solution to cuprous oxide when warmed (5). Soap liniment alone, even when heated to boiling, would not cause reduction.

The reaction upon which the process is based is

$$CHCl_3 + 2Cu(OH)_2 + 5NaOH \longrightarrow Cu_2O + Na_2CO_3 + 3NaCl + 5H_2O \text{ (6).}$$

Molecular weights used:

Chloroform 119.39	Cupric hydroxide 97.586
Cuprous oxide 143.14	Cupric sulphate, hydrated 249.71

1.19892 Gm. of cuprous oxide are formed for each Gm. of chloroform.
1.63474 Gm. of cupric hydroxide are required for each Gm. of chloroform.
13.549 Gm. of cupric hydroxide in one liter of Fehling's solutions.

Reagents.

Fehling's Solution.—A—Dissolve 34.66 Gm. of carefully selected crystals of copper sulphate in enough distilled water to make a volume of 500 cc.

B—Dissolve 173 Gm. of Rochelle salt and 50 Gm. of sodium hydroxide in enough distilled water to make a volume of 500 cc.

Hydrochloric acid 10 per cent
Sodium hydroxide 10 per cent
Nitric acid 10 per cent
Alcohol U. S. P.
Ether U. S. P.
Shredded asbestos.

Apparatus.

U Condenser.—A piece of glass tubing with an outside diameter of about 7 mm. and about 30 cm. long is heated in the flame and bent double, the radius of the bend being about one cm. The ends are then fire polished and forced through a two-hole number 5 rubber stopper. The distance from the top of the stopper to the end of the bend should be about 11 cm. The open ends may then be reheated and bent away from each other.

This stopper containing the condenser is to be forced into the neck of a 250-cc. Erlenmeyer flask and wired down. The object being to obtain a combination pressure bottle and reflux condenser. The condenser must be the specified

length, a 250-cc. Erlenmeyer flask must be used, and the quantities later specified must be added in order that the condenser may extend below the surface of the liquid in the flask. The condenser is to be connected with the cold water supply and water shall be kept flowing through the tube during the entire reaction.

Gooch Crucible.—Digest shredded asbestos of good quality with 10% hydrochloric acid for three days, wash free from acid and digest for a similar period with a 10% solution of sodium hydroxide. Then treat for a few hours with hot Fehling's solution of the same strength as used in the assay. Wash free from alkali and finally digest with 10% nitric acid for several hours. After washing free from acid, shake with water for use. To prepare the Gooch crucible, load it with a film of asbestos about one-qarter of an inch thick, using suction. Wash thoroughly to remove the finer particles of asbestos, and finally wash with alcohol and ether. Dry for thirty minutes at 100° C., cool and weigh.

Procedure.—Measure accurately 15 cc. of Chloroform Liniment into a 100-cc. volumetric flask containing alcohol. Add enough alcohol to make up to the mark and mix well.

Place 50 cc. each of Fehling's solutions A and B into a 250-cc. Erlenmeyer flask. Add 90 cc. of distilled water and 7.5 cc. of the above alcoholic dilution of Chloroform Liniment. Immediately insert the stopper containing the U condenser and wire it down securely. A tight fit may best be secured by wetting the stopper with water before forcing it into the neck of the flask. Care should be taken that the condenser extends below the surface of the liquid. Connect the condenser with the water supply and start the cold water flowing through it. Then place the Erlenmeyer in the water-bath at such a depth that the surface of the water in the bath is slightly higher than the surface of the liquid in the flask.

Heat the water in the bath to 87° C. (not less than 80° nor more than 90° C.), and keep the bath at this temperature for ten minutes. Then remove the Erlenmeyer and cool under running water to room temperature without stopping the flow of water through the condenser. When cool, rotate the flask gently in order to wash the condensed liquids adhering to the side down into the main portion. Replace the flask in the bath and heat to the same temperature for another ten minutes. Cool as before, and repeat the entire process a third time.

When cool after the third heating, remove the U condenser and wash with distilled water into the main portion. Without further dilution, filter the cuprous oxide on an asbestos felt in a porcelain crucible using suction. Wash the flask and the precipitate thoroughly with water at a temperature of 60° C. Then wash the cuprous oxide with 10 cc. of alcohol followed by 10 cc. of ether. Dry the crucible and contents at 100° C. for thirty minutes. Cool and weigh as cuprous oxide.

Each Gm. of cuprous oxide corresponds to 0.83408 Gm. of chloroform, and to 0.5651 cubic centimeter of chloroform when the specific gravity of the chloroform is 1.476 at 25° C. (The average of the specific gravity of the U. S. P.)

Example of calculation of results.

Sample.—Fifteen cc. of chloroform liniment diluted to 100 cc. with alcohol. Each cc. is equivalent to 0.15 cc. of liniment.

Aliquot portion used—7.5 cc. of the above dilution.

7.5 × 0.15 equals 1.125 cc. of chloroform liniment used in the assay.

Gooch and cuprous oxide	17.681 Gm.
Gooch	17.097 Gm.
Cuprous oxide	0.584 Gm.

Factor.—Each Gm. of cuprous oxide is equivalent to 0.5651 cubic centimeter of chloroform or to 0.83408 Gm. of chloroform.

$$\frac{0.584 \times 0.5651 \times 100}{1.125}$$ equals 29.33% of chloroform by volume.

$$\frac{0.584 \times 0.83408 \times 100}{1.125}$$ equals 43.298% of chloroform weight to volume.

CONCLUSION.

The greatest source of error in the estimation of the chloroform in Chloroform Liniment is in measuring the sample and in measuring the aliquot portion of the alcoholic dilution to be used, because of the extreme volatility of the chloroform. Due to this extreme volatility it is very easy to lose a small portion of the chloroform through spontaneous evaporation and when small samples are used, as they are in this method, even a slight loss causes considerable error.

The following precautions might be mentioned:

1. When adding the Chloroform Liniment to the alcohol, exacting care must be taken that none of the liniment touches the side of the flask, but instead flows directly into the alcohol.

2. In measuring the liniment and the alcoholic dilution of the liniment, pipettes may be used, but in each case, about five cc. more of the material should be drawn up into the pipette than is needed for the assay.

No unreasonable results are claimed for this process, but it is believed that with care in the manipulation, the method will prove accurate enough for all practical purposes. Since it is impossible to determine the specific gravity of the chloroform from which samples of liniment obtained at random are made, some figure for the gravity must be assumed in order to be able to report the per cent of chloroform by volume in the liniment. Therefore, it is assumed that the chloroform from which all liniment is made has a gravity of 1.476 at 25° C. This figure is the mean of the range of gravity allowed by the U. S. P. X for chloroform (7).

BIBLIOGRAPHY.

(1) *Chemical Abstracts*, 17 (1923), 3570—Jour. A. Ph. A., December 1923—"Rate of Volatilization of Chloroform from Liniment," J. W. E. Harrisson.

(1) *Chemical Abstracts*, 6 (1912), 2818—*Amer. Jour. of Pharm.*, 84 (1912), 372–373—"Quantitative Estimation of Chloroform in Liniment," J. L. Mayer.

(2) *Chemical Abstracts*, 10 (1916), 663—*American Food Journal*, 10 (1915), 467–468—"Determination of Chloroform in Cough Syrups," Earle B. Putt.

(2) *Chemical Abstracts*, 16 (1922), 3166; 19 (1925), 3146—*Journal of Association of Official Agricultural Chemists*, 5 (1922), 539–541—"Determination of Chloroform in Drug Products," A. G. Murray.

(2) *Chemical Abstracts*, 20 (1926), 3210—*Journal of Association of Official Agricultural Chemists*, 9 (1926), 296–301—"Report on the Determination of Chloroform in Drug Products," H. O. Moraw.

(2) *American Journal of Pharmacy*, 97 (1925), 584–586—"Determination of Chloroform in Liniment," T. M. Willgerodt.

(2) "Allen—Commercial Organic Analysis," Volume I, page 274.

(2) F. M. Perkin, "Qualitative Chemical Analysis—Organic and Inorganic," page 242.

(2) Barnett and Thorne, "Organic Analysis—Qualitative and Quantitative," page 15.

(2) Wilfred W. Scott, "Standard Method of Chemical Analysis," Volume II, page 1728.

(2) *Chemical Abstracts*, 3 (1909), 2487; *Merck's Report*, "Drug Topics," 18 (1909), 196—"Determination of Chloroform," E. H. Gane and M. H. Webster.

(3) *Chemical Abstracts*, 20 (1926), 92; *Amer. Jour. of Pharm.*, 97 (1925), 584–586—"Determination of Chloroform in Liniment," T. M. Willgerodt.

(4) Henry W. Schimpf, "Essentials of Volumetric Analysis," page 120.

(5) F. M. Perkin, "Qualitative Chemical Analysis—Organic and Inorganic," page 242.

(5) J. W. Holland, "Medical Chemistry and Toxicology," page 391.

(6) F. M. Perkin, "Qualitative Chemical Analysis—Organic and Inorganic," page 242.

(7) "United States Pharmacopœia X."

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor will also undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

ADVERTISING AND SELLING PROBLEMS OF DRUG STORES.

BY PAUL C. OLSEN.

How to Determine the Value of a Location.

Five dollars a month would be an extravagant rental for a store in one of the deserted mining cities of Colorado or Alaska. Some corner locations in the city of New York would be bargains indeed if they could be obtained for rentals as low as $100,000 a year.

All this goes to show is that the amount of rent which can be paid profitably for a drug store location depends upon the volume of drug store business which it has been or should be possible to do in that location.

What is more there is a decidedly important lower limit to potential drug store locations. (Alas, too often it is overlooked. Witness the thousands of competent pharmacists struggling to make a living in poorly picked locations—locations which simply won't permit them to make a living, because there aren't enough customers there from whom to obtain business.)

Even if one could obtain a location for a drug store rent free, that location would be a liability if it were possible to do in it a drug store business of only $6000 a year.

What is this lower limit of profitableness of drug store locations? It's a matter of judgment, of course, but it is a very important thing upon which to make a careful and exact judgment for a man contemplating investing his life's savings in the purchase of a drug store.

If a drug store proprietor can do in a particular location $40 to $60 a day, that is a business only large enough to justify the employment, in addition to the proprietor, of a boy or an assistant pharmacist or, possibly, a registered pharmacist a day or two a week for relief. It means in turn that the proprietor of such a store is confined, and it literally is confinement, to that store virtually all the 14 or 15 hours daily that it is open.

A store doing $75 to $100 a day is large enough to justify the employment of a registered pharmacist in addition to the proprietor. The proprietor, therefore, does not need to spend all his days in the store waiting on customers and doing the other necessary duties there. He is free to get out and meet his fellow pharmacists and learn the successful solution of these problems from personal contact with those faced with similar problems.

* Lecturer on Business, Columbia University and Philadelphia College of Pharmacy and Science.

No more energy, no more ability is required to run a drug store doing $75 to $100 upward daily than is required in one doing a business of only $50 a day. Even if the larger store earns no greater profits per dollar of sales, the total amount of profits is greater and the task of earning them is much more pleasant because it is less confining.

There are two ways to find locations in which it is possible to do a drug store business of $75 to $100 daily and upward. One is to purchase an established drug store already doing this volume of business. The fact that such a volume of business already is being obtained by a drug store in such a location is an indication that, with wise and prudent management, a similar volume of business can be expected in the future.

The second way to find such a location is obviously, to find a store building in which a drug store could be established which would be more accessible than any competing drug store to enough people to produce a volume of business of $75 to $100 daily and upward.

Or, if the customers in a given locality must be shared with competitors, will the share that the newly established drug store can expect to obtain be sufficient to assure a volume of business of $75 to $100 daily and upward?

The formula for such a calculation is to divide by 10 the number of families whose business can be expected and the resulting figure is the minimum average of daily business in dollars which can be expected in such a location.

This formula is also useful in establishing the future possibilities of an established drug store. It very well may indicate that the proprietor, through superior ability, may be obtaining considerably more than his share of the business which is to be had. The purchaser, therefore, must consider whether or not he can continue to expect to draw to the store this larger than average share of the business. One of the purposes of this series of articles is to point out the practical means retail druggists can use to draw to their stores more than their normal share of the drug store business to be had in a particular location.

The purpose of this article is to warn against the tragic error of establishing a drug store or purchasing a drug store which has a trading area so small that no matter how effectively cultivated it will not produce an attractive volume of business.

The formula stated above is no arm chair theory. The volume of business believed to be done in drug stores is between $1,200,000,000 and $2,000,000,000 a year. With a population in excess of 120,000,000 in the United States the per capita average purchase in drug stores is thus $10 to $15 annually, and the purchases per family $45 to $65 annually.

Dividing these latter two figures by 365, the number of days in a year, is the daily average purchase per family of 12 cents upward. Allowing for the differences or purchasing power of different communities, 10 cents per family per day certainly appears to be a reasonable minimum volume of sales to expect daily per family in a drug store.

It is of the greatest importance to analyze the potentialities of a location, not only as they exist to-day, but as they seem to be going to exist in future years. A location, the population of which is increasing, is advantageous to be sure, but, all too many times this advantage does not last long. Someone else observes the increasing population and establishes a competing store.

Similarly, a locality in which the population is decreasing is a disadvantage. Strenuous efforts will have to be made to maintain business, let alone to increase it.

Localities with changing populations also offer problems. The handsome tree-shaded mansions which to-day house the city's best families, may be converted to apartments and rooming houses in a few years. Nimble judgment is required to keep the service and merchandise of a drug store serving a community in which the population is changing, attuned profitably to these changes.

The store building itself has plus and minus factors. That it must be accessible is obvious, and the more accessible to customers and possible customers, the greater the advantage. Most drug store purchases are small and casual ones. People won't go far out of their way to make them, if they can be served as well or nearly as well close at hand.

The character of the traffic which passes a store has a great influence upon the present and possible value of that location. The traffic which is most valuable is that which is shopping traffic—people obviously looking for things to buy.

Automobile traffic is of the greatest value when it is composed of motorists who tend to stop and shop in the vicinity of the store. Those motorists who are moving merely through locality as fast as they can, not only are of little value as potential customers, but also may create such traffic congestion that motorists who would be good customers are discouraged from coming.

Foot traffic has similar characteristics. People hurrying to and from a large factory aren't especially valuable to the drug stores which they pass on their way to work. When they pass such drug stores, these people are in too much of a hurry to think of buying much and at night they are likewise in a hurry to get home. Sometimes such drug stores profit at their fountains from a rush of noon-time and even breakfast business, but this sudden and short-lived rush is difficult to serve satisfactorily, requires special help and actually may so congest the store that regular business is interfered with.

The variations in the amount of traffic on either side of the same street are amazing. These differences can be determined most accurately for a particular location by a count of the people passing during the hours and days on which it is reasonable to expect an important amount of drug store business is to be obtained. Generally the south and west sides of the streets are the favorite sides. These are the shady sides during the busiest shopping hours and, consequently, are coolest in summer and driest in winter.

Corner locations have greater value than inside locations in situations in which there is an important amount of cross-traffic. In small communities where the bulk of the traffic generally moves in a single flow without these cross-flows in large amounts, the advantage of a corner location is not nearly as important.

Of course, in both situations, the corner has an advantage in the added window display space but window display space is of little value unless it is seen by customers and prospective customers. Hence, the basic importance of shopping traffic.

The surroundings of the store are of the greatest importance. They may hinder the success of the store or they may greatly enhance its opportunities for success. On the affirmative side, locations close to other stores which draw the same class of customers as drug stores are of special value.

This is even true when the other stores include drug stores. Two competing drug stores, close to each other, will draw to that location more than twice the business each one would singly. On the other hand, this advantage is of no importance if the combined drawing power of the two is not sufficient to create a worthwhile volume of business for both stores.

Most of the customers of drug stores are women and children. Surroundings which are offensive to women and children are, therefore, a handicap to a drug store in such location. Pool rooms, garages and the old-time smoke shops are in this class.

Locations next to banks and churches necessarily reduce the flow of traffic passing the drug store because people only visit these institutions on comparatively infrequent occasions, and when they do, they usually are not in a shopping frame of mind.

There are physical conditions about a proposed location which may add to or detract from its value. Naturally a building which is in bad condition is a handicap and may cost real money in order to put it in the proper condition. Also if the building has steps up or, worse, steps down at the main entrance, that is a handicap.

Similar disadvantages are poorly arranged show windows and poor lighting and other physical conditions inside. Of course, it may be possible to overcome these by alterations, but naturally a store which already has these things has an advantage, other things being equal, over a store which needs extensive alterations before it is in a suitable condition to be occupied as a drug store.

WE DO NOT SUBSTITUTE—OR DO WE?*

In summing up the character of Brutus, it was said that "the elements were so mixed in him that all the world might stand up and say 'this is a man.'" Of the druggist it may be conceded that the elements in his personality are mixed, but it can hardly be asserted that the results are uniformly those ascribed to Brutus.

Students in prescription practice are repeatedly reminded that at the prescription desk, knowledge and educational equipment are subject to instant and constant requisition and more than all is moral character put to the test, for where so much as at the desk do such subtile suggestions of profits based on illicit practices with apparent immunity to consequences come with such specious appeal? Of all the delinquencies to which the druggist is subject, that of substitution is the one toward which attention is most generally directed. The grossest form—that of deliberately and knowingly supplying a different article than the one the customer supposes he is receiving and paying for, need not be discussed. One practicing this form of substitution is not the victim of any delusion—the distinguishing elements of his acts he holds in common with the pickpocket—his character is not sensitive to moral appeal—a jail sentence solely in the interest of public health is the most fitting solution.

A second and more insidious form of substitution is that resulting from buying outside the regular and legitimate channels of trade—a practice often done in good faith and from economic necessity. In his efforts to buy right, the pharma-

* Section on Practical Pharmacy and Dispensing, A. PH. A., Baltimore meeting, 1930.

cist errs in ignoring the fact that a bootlegger is without honor and an outlaw and whether he be a wholesaler, reselling allegedly genuine goods at a sacrifice in order fraudulently to swell his volume of business so as to satisfy the requirements necessary to cover his liquor output, or whether he be an individual engaged in smuggling or distributing spurious goods, his ideals have no higher stimulus than to get the money. Whether the merchandise be bought for home consumption or resale, the hazard is the same except that in the latter event it is borne by the customer without his consent or benefit. The foundation of a pharmacist's business rests upon the confidence of his client, and the positive hazard to the latter involved in buying outside of regular channels will not be incurred by any one with either a conscience or sound business sense.

A third and even more insidious form of substitution is that of substituting a chemical or pharmaceutical, alleged equivalent of a proprietary article, a piratical practice in which, strange to say, responsible manufacturers are often *particeps criminis*. Justification for this practice is taken on three grounds, *first*, that the substitute is identical, *second*, if identical its use is permissible, and *third*, the pharmacist has no obligation beyond that to his client.

The first presumption fails because the evidence is seldom sufficient to establish identity; it is such evidence as is accepted when, without injury to one's self, it supports the conclusion desired.

The second ground of justification can best be considered by comparison with a parallel case. Suppose manufacturer "X" discovers a valuable use to which a substance can be put and markets it under the label "yexine." He invests say $1,000,000.00 for the purpose of providing the necessary publicity and producing a market. The distribution of the substance creates a large new business for the agency of distribution: The expense of advertising responsible for this business is no liability to the distributor because the sale price includes his profits as well as an amount to come back to the manufacturer to refund the advertising outlay. In the meantime the pharmacist is told, and he accepts the testimony, that the "yexine" is identical with "xambate of xambine" which he can buy from other sources much cheaper, charge his customer the same price, and keep the change which should be returned to manufacturer "X" to pay for the propaganda which produced the business for him. All the while manufacturer "X" holds the umbrella. As though coming to the brilliant conclusion that two cents is too much to pay for a stamp, he accepts the word of his printer that he (the printer) can supply stamps just as good, as far as paper, ink and artistic design is concerned, for $2.00 per thousand thus enabeling him (the druggist) after paying the printer his $2.00 to keep for himself the $18.00 which the Government expects to apply on the outlay necessary to provide for transportation and distribution of the letter bearing the stamps. Very simple indeed, but the Government is looking for people who reason like that and when it finds them it deprives them of liberty, relieves them of cash and destroys their reputation, sending them to jail, imposing a fine and branding them with disgrace. Nor can manufacturer "X" be expected to be or will he be more lenient when his individual interests are violated.

The third ground of justification involves a much larger and more fundamental consideration than either of the other two: Our social and business relations are built on faith. Anyone violating faith does a serious damage to

everybody else in business, himself most of all. It is not enough that one pays his grocery bills, he must pay his tailor bills also. The merchant who uses his credit to the limit—sells what he can and then goes bankrupt allowing his creditors to get what they can is an enemy of all business men; he has not even the respect of his customers no matter how fairly he may have treated them or how much he has contributed to charity. In other words a merchant has obligations no less to those he buys from than to those he sells to, or to speak to the point, the obligations of a pharmacist are not limited to his pharmaceutical obligations to his clients, but are equally binding in his relations with the source of his supplies.

It would be a tragic situation if producers lost faith in the agencies of distribution and ceased in their efforts to create new business. On that day if it ever comes, when the pharmacist shall open his door and look for faith in the world and find none, he may well call for the rocks and mountains to fall on him for the day of wrath will indeed have come and who shall be able to stand?

MAKING OUR OWN EFFORTS THE BASIS OF OUR DESTINIES.*

BY LEONARD A. SELTZER.

There are in every age those who desire to live by their wits, some of whom without actually exercising them, and the latter, from the inevitable results, make the deduction that doomsday is at hand. The fact is the professional man cannot be successful and fail to exercise his wits, *i. e.*, to be original, to anticipate and to meet the needs of those he wishes to serve. This applies to pharmacy as well as other professions. We continually hear the complaint of those who, because they cannot profitably, as their fathers did, collect roots and herbs, make pills, liquid preparations and simple chemicals, that therefore pharmacy is doomed. Forgetting that the very thing they complain of is a tremendously increased production which reflects a correspondingly increased demand, and, since the pharmacist is the point of contact between the producer and the consumer (generally speaking), it means a correspondingly increased business—if he can get it.

Objection is repeatedly made to the glib tongue of the detail man, who, as a matter of fact, is making and actually keeping alive our business without cost to us; for is it reasonable to suppose, that manufacturing firms, to whom we attribute at least a keen business insight, would pay three or four dollars for an interview with a physician if they had no message that in their opinion would be of value to the physician and if so, would reflect profit to them and if profit to them, then also profit to the distributor? Is it not a fact that this constant flood of well-advertised new things is the very life blood of our business, even though occasionally a part of a bottle or package be left on the shelf? And (parenthetically) as a practical prescriptionist, the writer wants to say that he considers this so-called dead stock one of the best assets of his business.

---

* Section on Practical Pharmacy and Dispensing, A. Ph. A., Baltimore meeting, 1930.

Then again we have the oft repeated complaint that physicians do not confine their prescriptions to U. S. P. and N. F. preparations: if they only did that, it would be so simple a matter to keep stock and we could make such a profit! This complaint was recently repeated in an article in one of our leading drug journals, and amusingly enough, the author answered the objection himself in the same article by the statement that the most frequently used official preparations which formerly sold exclusively as prescriptions had, as a result of their being so frequently used, become hand-sale items, like Epsom Salt and Seidlitz Powders. This not only is exactly what one might expect but also, the more the range of items becomes limited, the greater the tendency of the doctor not only to carry them himself but to lessen his interest in them as well: "Too great familiarity breeds contempt."

What then is the conclusion of the whole matter? That the trouble is not "with our stars but with ourselves." Never mind the mote in our brother's eye, while the beam is in our own. Let us desist from the almost universal tendency of accounting for our troubles in the doings of others, in whose acts we have no control, and neglect the remedy which lies in self-examination where we have complete control. If we do the latter, we will find it unnecessary to "educate the doctor" (we hear so much of educating the doctor which is rather ill becoming when we consider the relative educational standards of the two professions) and we shall further find it unnecessary to spend our money buying him textbooks, such as Pharmacopœias and Dispensatories. What we are more likely to find is that too few of us are willing to make the necessary sacrifice and measure up to the opportunities of our business; too few of us are capable of adjusting ourselves to the ever-changing needs of business, because life whether business life or physical life is the capacity of adjustment and as soon as that capacity is lost death ensues; too few of us are willing to devote ourselves to professional work; to sacrifice the immediate profits on commercial transactions and to assume the hard work and take the grief that goes with the establishing of a professional business. On this point the writer assumes to speak with authority and not as the scribes.

In the last revision of the Pharmacopœia, the rule was adopted that the physician members of the Revision Committee should decide on matters of admission and the pharmacist members on matters of preparation. The rule is a wise one to follow in our relations as pharmacists with the physician. Let the physician prescribe what he wants. It is for the interest of every one including the pharmacist that he should do so. The Pharmacopœia is not and was never intended to limit him in what he should do. No pharmacist would employ a physician in his own family who did so limit himself. The Pharmacopœia is a book of standards of medicinal substances of proved value at the time of revision. Medical science depends on experimentation and trial of new things and so long as it continues to grow and advance the physician will avail himself of the newer discoveries. Witness the large number of such articles in the N. N. R. Many of these items will in all probability find their way in the Pharmacopœia in due time, but their usefulness will have begun long before such admission.

And so, let those of us who really want to do professional work not despair: the opportunities now are greater than were those of our fathers.

SOME PERTINENT ASPECTS OF HIGHER EDUCATION.*

BY EDWARD H. KRAUS.[1]

As our civilization has advanced, the periods of educational preparation demanded for the various professions have been steadily lengthened. Graduation from high school and from three to six or seven years of collegiate training are now generally required for admission to our health professions. Indeed, among the candidates for degrees here to-day, there are many who have spent a whole decade in high school, in collegiate study and in formal professional training in preparation for their life's career.

While this decade has been one of steady progress for them in their academic and professional education, it has, however, been a period of most extreme economic, industrial and educational changes in this country and in the world as a whole. A consideration of some of these changes, and their influence on higher education, especially as they refer to the professions dealing with the conservation of health, may not be out of order at this time.

Ten years ago, this country was in an era of unprecedented prosperity. As one of the results of the great war, orders in large volume came to us from all over the world. Unheard of industrial expansion followed. It was during these years that unquestioned world leadership in industry and finance passed from Europe to the United States. As a consequence, conservatism and moderation were soon ruled out of court, and uncontrolled optimism became the order of the day. A period of wanton and reckless speculation with "the sky as the limit" followed.

Then suddenly, the country was plunged from the high crest of prosperity and optimism into the deep trough of the most violent crash known in the economic history of the world. Pessimism, despondency and even hopelessness and futility seemed to gain the upper hand in industrial and financial circles. And just now, after a period of careful inventorying, much sober thinking and wide-spread attempts at stabilization, we seem to be slowly emerging into an era of saner living and thinking in which it is hoped that less emphasis will be placed upon the material and temporal things and a greater appreciation developed for the eternal, spiritual values of life.

During the early and middle twenties, American industrial, social, financial and educational methods and policies attracted world-wide attention. They were studied by experts and commissions from all over the world, who came to our shores to gain first-hand knowledge of the secret of our success and prosperity. Among the very first to study our methods, policies, and institutions, intensively and critically, were the Germans. As a defeated nation, with industry and foreign trade wrecked, and burdened with huge debts, they were faced with the great problem of rehabilitation. The impressions and reports of the German experts and commissions appeared, upon their return, in a steady stream of publications ranging from small pamphlets to volumes of impressive size, and were in the main most favorable to us.

---

* Address, given in Chicago, at the commencement exercises of the Colleges of Medicine and Dentistry, and the School of Pharmacy of the University of Illinois, and of the affiliated Schools of Nursing, June 13, 1931.

[1] University of Michigan.

As a result, numerous American books on manufacturing processes and business administration were translated. Many of our methods were soon installed in some of the leading German industrial plants. Also, American products were imported in increasing quantities. This had progressed to such an extent that in February 1926, while in Germany, I was taken by a German engineer from Berlin to Eberswalde in a Willys-Knight car to inspect a new brass and copper rolling mill with a layout and installation patterned after that of one of our great mills at Bridgeport, Connecticut. Moreover, the administration building of this great concern was equipped with typewriters, adding and calculating machines, and other office devices imported from this country.

All this was in striking contrast to the attitude of the leaders and thinkers, and of the Germans as a whole, at the beginning of the twentieth century. In those days, our country was looked upon as being an excellent outlet for goods labeled "Made in Germany," but of little significance in industry, education or world affairs.

The lead taken by the Germans was soon followed by the French, English and others. The expression, the "Americanization of Europe," was soon read and heard on every hand by the traveler abroad. It was shortly followed by the "Americanization of the world." But, alas, our prosperity was not enduring. On account of our preëminent world position the economic crash in this country was felt the world over. Accordingly, other nations are also passing through experiences similar to ours of the past two years. This period has been, and still is, the world over, one of the severest testing of the character not only of individuals, but of nations, as well. We all hope a new and better world may emerge.

With this hasty and quite incomplete survey of the industrial and economic conditions of the past decade before us, let us now briefly consider some of the things that have transpired in the realm of education. For no matter what the economic status of the municipality, commonwealth or nation may be, the training of the youth must go forward. Indeed, this training should be on a progressively higher plane if the younger generation of to-day is adequately to meet the problems of our civilization that is ever becoming more complex.

From the very beginning an intense passion for education has characterized the American people. As soon as they possibly could, the early settlers established schools for the education of the younger children. And only sixteen years after the pilgrims landed at Plymouth, Harvard College, our oldest collegiate institution, was founded. Indeed, during our colonial and expansion periods, schools and colleges followed closely the westward movement of our pathfinders and settlers. This interest in education has constantly increased so that to-day it is greater than ever before.

During the decade just closed, the growth in education in the United States has been most extraordinary, especially at the high school and college levels. In this period the number of pupils in our elementary schools increased by about three million. High school enrollment nearly doubled, so that to-day nearly five million young men and women are studying in our secondary schools. This was to be expected for the facilities for education at this level have been expanding at a rapidly increasing rate since 1890. And, in the field of higher education our

colleges and universities have been taxed to the utmost during this ten-year period, for here, too, the enrollment has shown an increase of about 100 per cent.

In the early days of our country, we were chiefly concerned with providing educational facilities at the elementary level, so that the rudiments of education might be made available to all of our children. Of course, high schools and academies, and colleges and universities were established and developed, but the number of our young people availing themselves of the opportunities at these higher educational levels was rather restricted. But about 1890, greater emphasis began to be placed upon the need of high school education for the great mass of our young men and women. New high schools were established at the rate of one a day, and that has continued almost uninterruptedly down to the present time. With rapidly increasing numbers graduating from our secondary schools, the attendance upon our colleges and universities went up by leaps and bounds. Since 1900, there has been an increase of about 50 per cent in the enrollment in our elementary schools, an increase of about 700 per cent in our secondary schools, and one of nearly 600 per cent in our colleges and universities.

To-day, about one in every four of our population is attending some educational institution. We have more students in our high schools and our colleges and universities than all the countries of the rest of the world have in similar institutions. These figures are not only interesting to us but also very impressive to foreign educators.

Thus, in the spring of 1928, for the first time in history, a group of thirty men and women representing all phases of education in Germany spent, with great profit, three months in this country studying the various phases of our educational methods from the kindergarten to the graduate school. And only a few months ago Sir Michael Sadler, Master of University College, Oxford, England, in commenting in England upon the progress of education in this country, pointed out that in the United States about one out of every 120 of our population is a college or university student. In Germany the ratio is only one out of 650, in France one out of 700, and in Great Britain one out of 1000. In fact, in the State of Illinois with a population about one-sixth of that of Great Britain there are twice as many students in its institutions of higher education than in all the institutions of similar character in England, Scotland and Wales.

Moreover, while thirty years ago it was almost imperative that students, desiring advanced academic and professional training, spend some time in foreign study, to-day this is not so necessary because of the great educational advances we have made on the university level. Formerly but few foreign students came to our shores for study, but to-day, as Duggan informs us, more than 10,000 students from other countries are enrolled in our colleges and universities. They come from all parts of Europe, Asia and Latin America. In fact, this group is twice as large as the number of American students now studying abroad.

These very significant facts clearly indicate that our people have a passion for education, and that the training of our youth has long been recognized as a fundamental function, an essential safeguard, and a chief responsibility of a democracy such as ours. Indeed, this passion is greater than ever before. To-day we spend well over three billion dollars annually to provide educational facilities for the somewhat more than thirty million who are enrolled in our various schools

and colleges, staffed by a million teachers. The amount thus spent has doubled during the decade we are considering.

While this sum seems to be enormous, it amounts to only twenty-five dollars per capita. Indeed, it is no larger than the amount that is spent annually in this country for life insurance. And recent investigations by the Bureau of Education clearly indicate, that although we place strong emphasis upon education, we spend more than twice as much for the luxuries of life, such as tobacco, confectionery, theatre, jewelry, perfumes and cosmetics; moreover, our annual expenditure for the purchase of new automobiles is much larger than what we pay for education.

In discussing education in the United States the eminent English economist, J. Ellis Barker, in his critical survey entitled, "America's Secret," says: "The United States owe their vast wealth not merely to the great extent of their territory and of the natural resources contained in it, but also, and particularly, to the energy and ability with which the resources of Nature have been exploited by the people. The energy and ability of the American people are very largely due to the practical and thorough education and character training which they have received. Their abilities are rather acquired than inborn." Barker says further: "America's economic success is largely due to the fact that, in the words of the late Mr. Choate, 'Education is the chief industry of the nation.' "

Although the decade, just passed, has been marked by the greatest interest and expansion in educational affairs and facilities in the history of the country, or, for that matter of the world, it has also been a period during which education in all its phases has been subjected to intense criticism and severe testing. The objectives and the value of many of our educational projects and methods were repeatedly questioned, for growth and expansion do not necessarily result in genuine and permanent advance.

Much of this criticism came from within the ranks of the educator. Naturally, some of it was sincere and constructive, but much was not. Fortunately, the various groups of stalwart men and women who have had long experience in shouldering the burden of educational problems, and have been the motive power behind some of the great forward movements can usually, and without much difficulty, differentiate between the sincere effort of tried educators for advancement, and the fanatic agitation of those, who commonly are young and more or less inexperienced, but have exceedingly active minds and vivid imaginations. It is members of the latter group who are constantly advocating that we throw into the discard the existing order and substitute all manner of educational will-o-the-wisps.

It was only natural that our rapid expansion should permit such pseudo-educators to flourish. The decade has, hence, seen many fanciful experiments tried at all levels of education, and then discontinued a few years later. One may, however, safely say that we are to-day, on the whole, educationally much wiser and farther up the ladder of progress than we were ten years ago.

Of special interest to the group here to-day is the splendid progress that has been made during the last decade in advancing the educational requirements for admission to the health professions. At present, we take great pride in the high standards that now, or shortly will, obtain in medical, dental, pharmaceutical,

and nursing education. But we commonly forget that the present advanced preparation demanded for these professions is of comparatively recent date. Indeed, as recent as sixty years ago, the teaching of medicine in this country was considered a social disgrace. At that time the requirement for graduation in medicine at Harvard University, and other leading medical schools, consisted in the attendance upon two sessions of lectures of four months each. The degree of Doctor of Medicine was usually conferred after the passing of a nominal examination, and upon the presentation of evidence of having studied medicine for three years, including the time spent in medical school. In 1870, shortly after he became president of Harvard University, C. W. Eliot endeavored to persuade the medical faculty of that university to advance its requirements for graduation. Among other things, President Eliot suggested that a written examination be substituted for the final five-minute oral examinations given by the professors in charge of the various subjects. The dean of the faculty, however, immediately pointed out that it would be impossible to hold written examinations for he knew that the students of medicine could not write well enough. What marvelous advances in medicine and medical education have been made in these sixty years! In fact, these advances are greater than those made by any other profession.

In considering this great progress in medical education we must not overlook the fact that much of it has taken place since the famous Flexner study, made in 1910. During the decade we are discussing there has been continued advance. And in spite of the present high demands, medical study had increased in popularity. We are told that last year more than 800 American students applied for admission to one of the medical schools in Scotland, and that the number of physicians graduated in 1930 by the sixty-six approved medical schools on the four-year basis was as large as the number that completed their medical training twenty years ago when we had twice as many institutions. To-day the United States has more physicians than any other of the leading countries, for our ratio is one doctor to every 800 persons; while in Switzerland it is one to 1250, in England and Wales one to 1490, in Germany one to 1560, in France one to 1690, and in Sweden, one to 2860.

Dental education has also marched forward. The advances in this field are of even more recent date than those in medicine. Although the first college of dentistry in the United States was established in Baltimore in 1840, the teaching of dentistry was not recognized by any of our well-established universities until 1867, when the Harvard School of Dentistry was organized. Similar units were then established at other leading universities. Interest in this phase of the conservation of health increased, and the number of young men and women preparing themselves for the profession of dentistry grew rapidly.

Although the requirements for admission to the study of dentistry and for graduation were advanced from time to time, the standards lagged much behind those of medicine. During the decade we are discussing, Dr. W. J. Gies made his searching and constructive study of dental education under the auspices of the Carnegie Foundation for the Advancement of Teaching. Just as advances in medical education were greatly stimulated by the Flexner report, so the study by Gies contributed in no small way to the adoption of the present requirements of one or two years of college training in preparation for the professional work of

three or four years. These advances have placed dentistry on an exceedingly high plane. By the general public the profession is held in high esteem, for the importance of the care of the teeth in the conservation of health is more intelligently understood than ever before.

The most striking progress during the ten years, that we have been reviewing, has probably been made in pharmaceutical education. Although historically, pharmacy may be considered the mother of both medicine and dentistry, she has permitted her progeny to outdistance her in educational advancement and achievement, as well as in the recognition, at present, given by the public to these health professions.

Ten years ago many colleges of pharmacy in this country were admitting students with but two years of high school preparation, and graduating them after two years of professional study. The demands, however, of pharmaceutical educators, especially those associated with our state universities, were such that the requirements for admission to and graduation from the colleges constituting the American Association of Colleges of Pharmacy were steadily advanced, so that to-day all colleges of the Association demand high school preparation for admission, and already more than one-third of them have made the four-year course obligatory for graduation. In 1932 this requirement will become compulsory for all members of the Association.

During this decade, a study of pharmacy, in many ways comparable to that of dental education made by Gies, was conducted under the auspices of the Commonwealth Fund by Dr. W. W. Charters of Ohio State University. Although Dr. Charters confined his investigations chiefly to the functions and responsibilities of the neighborhood pharmacy, his observations on other phases of the profession, and upon pharmaceutical education, were most significant and helpful. The Charters report contributed very materially to the extraordinary advance in pharmaceutical education made during the past ten years.

Observations similar to those which have been made for medicine, dentistry and pharmacy, might also be cited in the case of nursing education. Better preparation and higher standards for the professional training have been insisted upon. Marked advances have, accordingly, been also made during the past ten years in this very important phase of the promotion and conservation of health.

Not only has there been marked improvement in the character and the quality of the students entering and being graduated from our institutions giving instruction in these disciplines, but much higher standards have also been set for those seeking teaching positions in these fields. Then, too, the teaching facilities have been greatly improved, for at many of our universities splendid new buildings and laboratories for instruction in medicine, dentistry, pharmacy and nursing have been built during this decade.

Furthermore, the period has been marked by unusual progress in hospitalization, not only as to the number of new hospitals, but also with regard to generally improved facilities. The planning and constructing of the very beautiful and efficient medical centers in many of our leading cities give striking testimony to the fact, that our citizenry is more vitally interested in health than ever before, and that the health professions are earnestly striving to render a wider and better

service to a larger proportion of our population. Indeed, the older idea of the hospital as a "house of death" has given way to the newer and more appropriate conception of it as a "house of life."

In the furthering of these newer conceptions of health, the Federal Government has aided materially through its national conferences on child welfare, by the work of the committee on the costs of medical care, and by the splendid assistance given by its health service, and its many other agencies. And the very important activities of such organizations as the Red Cross, the Rockefeller, Milbank, and Commonwealth Foundations must not be overlooked.

That our people consider the promotion of the physical health of our communities as one of their precious assets, and accordingly desire to learn how to live better and more effectively, is clearly evidenced, I believe, by the fact that as a nation we spend more than three billion dollars a year for medical care. This sum is as large as that expended for all educational purposes. Moreover, our leaders fully realize that if the public is to receive the best possible service, there needs to be close and sympathetic coöperation on the part of the great health professions—medicine, dentistry, pharmacy and nursing.

The decade under review has also been marked by great advances in scientific medicine, for many extremely important discoveries and contributions have come from the research laboratories of our universities and our great pharmaceutical manufacturing plants. All I need to do is to remind you that insulin in the treatment of diabetes and liver extract in pernicious anæmia were developed during these ten years. The Kahn and Dick tests are also contributions of this decade. The present-day emphasis on vitamins, the synthesis of thyroxin, the intensive research on hormones and the extensive production of efficient synthetic organic medicinals are developments of the last few years. Many other achievements might be cited, but enough has been said to show that the scientific advances made in the various fields related to health have been extraordinary during the period that you, who are candidates for graduation here to-day, have received your training in secondary schools and colleges.

I hope that this survey, although very hurried and quite incomplete, has clearly indicated that in spite of the recent serious, economic and industrial reverses in this country, education and scientific achievement have moved steadily forward. And that it is also evident, that the last decade has been marked by advances of far-reaching importance to the health professions. Accordingly, one may sincerely affirm that the candidates for graduation here to-day have had the benefit of the best facilities ever provided by this University in their respective fields. You will enter upon your life's work with an excellent preparation and a superior scientific knowledge. That you are aware of this, I am confident. I am also confident, that while you rejoice that you have been so privileged, you are cognizant of the enlarged responsibilities that these advantages impose. It is therefore incumbent upon you constantly to strive to render to humanity a service as full, efficient and self-sacrificing as has ever characterized your professions. To you, much has been given, and from you, much will be expected.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

AND WHAT IS CULTURE?

BY J. W. STURMER.

"Botany," says Professor Zufall in the May issue of THIS JOURNAL," is a cultural subject." When he tells us that a certain flower is staminate, or that a certain leaf is cordate, we know precisely what he means, for a scientific term has a definite meaning, and there is no ambiguity about it. When, however, he speaks of botany as being of *cultural* value, he uses a word which is subject to common usage, and by all sorts of people—a word which has acquired a variety of connotations. What does he mean? What do *we* mean when *we* argue about cultural subjects in connection with pharmaceutical education? Do we agree in our definition of *cultural?* It may be that the confusion which has characterized certain discussions of the proposed curriculum for pharmacy students, has arisen not so much from a difference of opinion as from our inability to understand each other.

The word culture is interpreted variously. We speak, for example, of the culture of the ancient Egyptians, and have in mind the aggregate of human development to which they had attained. We characterize people of our acquaintance as persons of culture if they manifest esthetic capabilities and show appreciation of the fine arts, namely of literature, music, the drama, painting or sculpture—an appreciation involving not only knowledge and discrimination, but in a large measure, emotional responses. We may also use the term culture to indicate refinement, graces of manner and the ability to conform to the standards of polite society.

I take it, however, that when we speak of the cultural in connection with pharmaceutical education, we have reference particularly to a training which has for its objective—or at least one of its objectives—a broadening of the range of thought, and the development of the ability to think profoundly and clearly. We have in mind, further, the importance of providing a good foundation, and a proper background, for the studies which we are accustomed to classify as vocational or professional. Indeed, as pharmacy makes progress, and factual knowledge accumulates to proportions which are fairly staggering in extent and variety, the necessity for a broad and liberal education as a foundation for the training in those studies which are of direct utility becomes more and more apparent. And every educator knows this.

Thus it may be said that the cultural studies, as the term is employed in connection with curriculum problems, are the foundational or basal subjects which would, of course, give us warrant to include botany in that category.

It must be remembered, to be sure, that the cultural value of any study depends largely upon the method of approach, upon the manner in which it is taught, where the emphasis is placed, in short, depends upon the professor. But, speaking generally, the foundational studies offer greater possibilities for cultural development than do the subjects in specialized fields, which accounts for the fact that, in connection

with education, the terms foundational and cultural are so frequently used interchangeably. The college training of the future pharmacist must be broad and liberal and, in that sense at least, cultural. If we would have him capable to readjust himself to the changes incident to scientific progress, if we expect him to take his place, side by side, with men of the other learned professions, if we would have him possess the breath of knowledge, and to exhibit the morale which he will require if he is to take a part in the advancement of pharmacy, we must see to it that his college course provides something more than a vocational training. There must be, also, cultural education. Indeed, no matter what may be our interpretation of culture, even though we may think of it with reference to the esthetic, or in connection with the social graces, I would still contend that culture is an asset to the pharmacist.

It does appear, however, that in our discussion of the new curriculum, we shall have difficulty in making ourselves understood unless we explain what we have in mind when we classify a subject under the caption "cultural."

DR. GEORGE B. WOOD.*

BY ARNO VIEHOEVER.

Quite a number of years ago, a young lad walked on the sidewalk of one of the residential streets of Philadelphia enjoying the bright breezy morning air, not thinking of anything in particular. Then suddenly he noticed sheets of white paper on the pavement near a house with an open window on the street floor; they were handwritten pages. The boy thought a while, then pulled the string of that house bell. A stately gentleman appeared at the door; the chap inquired whether these papers belonged to him and were wanted. The man readily enough recognized his own handwriting and the pages as part of his finished manuscript of the Commentary on the United States Pharmacopœia, which had been disturbed by a gust of wind reaching his desk. He placed his hand upon the head of the boy, saying with tender devotion: "I trust that you might add luster to this work which has engaged me for a life time." The author was Dr. George B. Wood, the lad our Joseph P. Remington. A true incident in the life of two leaders, related to me by the nephew of Dr. George B. Wood.

DR. GEORGE B. WOOD.

It is a fitting memorial to a man to have his work survive him. If the foundation be right, the partitions of the upper structure may be torn out and replaced by others—even the building may be changed, enlarged in size, increased in height. Dr. Wood deserves lasting credit that he, 100 years ago, took the initiative and established in the revision of the Pharmacopœia the scope, imbued it with his spirit and left the imprint of his broad training,

* Section on Historical Pharmacy, A. PH. A., Baltimore meeting, 1930.

thinking and acting. He happily met the physiological need (therapeutic value) with a number of suitable drugs, crude and prepared, according to the best pharmaceutical knowledge of his time.

George B. Wood—a Quaker, eager, ambitious, trained in medicine, graduating in 1818 as D.Med., teaching medical students for years in Dr. Parrish's private school, teaching chemistry to pharmacy students of the Philadelphia College of Pharmacy from 1822; materia medica from 1831, and materia medica and pharmacy to medical students at Pennsylvania University from 1835—was eminently qualified to represent the Philadelphia College of Physicians at the Pharmacopœial Convention in Washington, in 1830. For nine months, with the aid of Dr. Bache, his colleague and successor in the chair of chemistry of P. C. P., Wood revised the U. S. Pharmacopœia, almost completely rewriting it, two or three times, in some portions, by hand. "Nine months' labor, without recompense, other than consciousness of duty performed and public benefit conferred."

Wood and Bache were the delegates from the College of Physicians to the Pharmacopœial convention in Washington. Only eight delegates were present; an organization was effected, the Philadelphia report was adopted and referred to a number of physicians in different parts of the country, preparatory to publication. The apothecary or pharmacist of that period had no hand in giving form or scope to the work, except in so far as Wood and Bache were able to put the pharmaceutical stamp on it. They deplored the want of such counsel and assistance. "Any one who considers for a moment the nature and purpose of the Pharmacopœia—that all the formulæ are for the guidance of the apothecary and that he, much better than the physician, as a general rule, understands their principles and modes of execution—must see at a glance, if free from prejudice, how unjust and at the same time impolite was this exclusiveness." The U. S. Pharmacopœia immediately won a reputation for scientific accuracy, establishing a national authority for drugs. It became a standard morally and obligatory upon both professions as if it had been brought forth under the sanction of law." Wood, in 1840, represented the University of Pennsylvania at the Convention. In the same year he formally asked the president of the Philadelphia College of Pharmacy for suggestions in relation to amendments, additions or omissions. He ventured to hope that the "interest which the pharmaceutical and medical professions feel in the object will induce the college to lend the valuable aid of their practical experience and skill in the revision of the book." Needless to say this help was enthusiastically given.

Dr. Wood possessed comprehensive knowledge in the medical, pharmaceutical and chemical field. He was a writer, both in prose and verse, the editor through fourteen editions of the United States Dispensatory, of the commentary of the U. S. Pharmacopœia, the public advocate of higher standards and professional conduct, responsible for the credit pharmacy justly claims in the Pharmacopœia, an untiring, resourceful, creative worker.

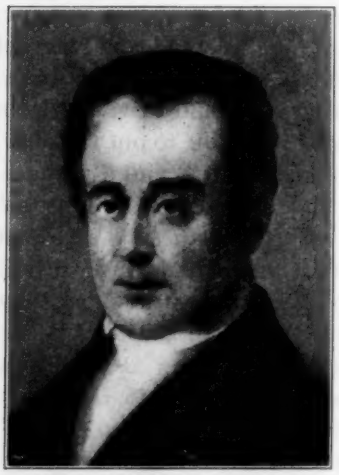
Would that we—to-day—had more men like Dr. George B. Wood, bridging the gap, artificial though it is, between medicine and pharmacy—in the interest of a still better pharmacopœia and of medicine at large!

DR. THOMAS TICKELL HEWSON, CHAIRMAN U. S. P. REVISION COMMITTEE, 1830, WASHINGTON.*

BY W. O. RICHTMANN.

Thomas Tickell Hewson (1773–1848) was born in London, England, April 9, 1773, the second son of William Hewson, an eminent English anatomist and physiologist, and Mary Stevenson. Hewson's father died when the son was a little more than one year. He received his early education in England, and then in 1786 came to the United States with his mother, and soon entered the Junior Class of the College of Philadelphia, afterward the University of Pennsylvania. On account of his youth, he did not graduate until 1789, after which he studied medicine with Dr. John Foulke, and later continued his medical studies in London and Edinburgh until 1800, when he returned to Philadelphia.

Hewson held various positions with the several hospitals of Philadelphia from 1806 to 1835. He was also connected with the faculty of the University of Pennsylvania and the Philadelphia College of Physicians from 1802 to 1848, serving the latter as secretary, censor, vice-president and finally president (1836–1848).



DR. THOMAS T. HEWSON.

Hewson participated in the formation of the United States Pharmacopœia of 1820. He served as a delegate of the Philadelphia College of Physicians at the Middle District Convention at Philadelphia; and as a delegate from this District Convention to the General Convention at Washington; and finally on the Committee of Publication which met at New York.

His interest in the Pharmacopœia continued, and in the preparation for the revision of the United States Pharmacopœia in 1830, his college, in 1828, appointed him chairman with two others, and later with still another, to prepare a draft of the revised Pharmacopœia. After more than one hundred meetings at his home such a draft was prepared in full, and ready for the press. The College adopted the report, sent it to the General Convention at Washington in 1830. The Convention adopted the report and submitted it to the Committee of Revision and Publication, of which Hewson was elected chairman. The Committee published the report, after noting various comments of the other members of the Committee, as the First Revision of the United States Pharmacopœia, or the United States Pharmacopœia of 1830. The records of the Convention do not show that Hewson was a delegate to the General Convention.

Hewson again served as the chairman of a Committee of his College to prepare a revision of the text of the Pharmacopœia in 1840, which was again adopted by the General Convention as a basis for the revision.

Aside from his active participation in the preparation of the first United States Pharmacopœia, and the two following revisions, Hewson was active in the

* Section on Historical Pharmacy, A. PH. A., Baltimore, Md., 1931.

medical profession of Philadelphia, having published a number of papers from 1802 to 1846; and also an English translation of F. Swediams "Treatise on Syphilis," in 1815. He died February 19, 1848, at the age of 75.

(The biographical data were obtained from the Obituary Notice of Thomas T. Hewson, M.D., by Franklin Bache, M.D., 1850.)

DR. ELI IVES, CHAIRMAN U. S. P. REVISION COMMITTEE, 1830, NEW YORK.*

BY W. O. RICHTMANN.

Eli Ives (1779–1861) was born February 7, 1778, in New Haven, Connecticut, the fourth child and third son of Levi Ives and Lydia Augur. His father was a physician. Ives' early education was partly self obtained, and partly by a tutor. He entered Yale College in 1795, and graduated in 1799. His scholastic record was undoubtedly high, judging from the various offers he received to teach, and also from the fact that he delivered, by appointment, the Phi Beta Kappa Oration at Yale in 1802. His address dealt primarily with Botany and Chemistry. He was Rector at the Hopkins Grammar School in New Haven for fifteen months (1799–1800), and during this time he began the study of medicine with Dr. E. Monson, Sr. He then went to Philadelphia and attended the Philadelphia College of Physicians at two different times. It is not recorded that he graduated from the College. He was admitted as a member of the Connecticut Medical Society in 1802.

He soon began the practice of medicine by himself, and became much interested in the indigenous materia medica. He was also active in the establishment of the Medical College at Yale, which opened in 1813. He started, at his own expense, the botanical garden and hot houses. This effort, unfortunately, was short lived. He continued his connection with the Medical College at Yale for 48 years.

He was a member of the General Convention for the formation of the United States Pharmacopœia in 1820, and also of the Convention of 1830, which met at New York, and was elected chairman of the Committee of Revision and Publication of the Pharmacopœia issued by that Convention. The form and contents of that Pharmacopœia differed materially from the one issued by the Convention held at Washington at about the same time, and from all the others since that time. It was the only issue of the United States Pharmacopœia, until that of 1900, to contain doses; and the only one, to contain data relative to the uses of the drugs. Whether Ives was directly responsible for these changes, the records fail to state.

His interest in the indigenous materia medica undoubtedly arose from his preceptor, Dr. Monson, who was active in trying the various vegetable products of New England. Ives continued the same policy, so most of his knowledge of these products was the result of his personal observations. Thacher (1828) says "indigenous materia medica under Professor Ives, is perhaps at a higher standing at Yale College than at any other similar institution in the United States." In connection with his observations on the indigenous materia medica, he is credited with having

* Section on Historical Pharmacy, A. PH. A., Baltimore, Md., 1931.

originated the groups of "deobstruents." Among his publications, is "Vegetable Productions Found in New Haven," first issued in 1811, contains 320 species of plants. A later edition, with the aid of two others, published in 1831 (and reprinted in 1838) contains 1156 species.

Ives was the president of the American Medical Association when it met at New Haven, Connecticut, in 1860. He died October 8, 1861.

(The biographical data were obtained from the Biographical Notice of Prof. Eli Ives, M.D., by Henry Bronson, M.D., *Proc. Conn. Med. Soc.*, 1864–7 (1867), s. 2. v. 2, pages 311–320.)

HISTORICAL FRAGMENTS.

BY EDWARD KREMERS.

NO. 22. TWO INVOICES OF 1785.*

In one of his interesting articles on the early development of pharmacy in Pennsylvania, the late M. I. Wilbert pointed out that when, in 1765, Dr. John Morgan returned from his medical studies in Europe, he intended to bring about a separation of the practice of pharmacy from that of medicine. In order to make his experiment more effective, he induced an English apothecary, a Mr. Leighton, to come with him. We are also informed that this apothecary brought with him to the new world a supply of medicaments purchased from Sylvanus and Timothy Bevan of London.[1]

Again and again we are informed that the colonial apothecaries imported medicaments from England. We learn of this, that and the other drug and preparation used by colonial medical practitioners, from the very nature of which, *e. g.*, opium, we infer that it had been imported. When we look over the items of Surgeon Locke's letter,[2] and find that almost all of the drugs and preparations called for by this medical practitioner who accompanied the militia of the Bay Colony to the front in King Philip's war, 1676, are to be found in the London Pharmacopœia official at that time, we feel justified in assuming that these remedies had previously been imported from England. However, an actual list of drugs and medicaments thus imported seems to be wanting thus far among our historical documents.

When, therefore, "Plough Court, the Story of a Notable Pharmacy 1715–1927" made its appearance, the writer inquired from Allen & Hanburys, Ltd., whether any information concerning Mr. Leighton's transaction with their predecessors was still available. Unfortunately no list of the medicaments imported by this London apothecary could be found. However, under date of July 5, 1928, Mr. F. W. Gamble, Director of Allen & Hanburys, Ltd., wrote: "We have looked through a number of our old documents here, and found two original orders that came to us from Philadelphia in 1785. We think that probably these will be of

---

* Presented to the Section on Historical Pharmacy, A. PH. A., at the Portland meeting, 1928.

[1] M. I. Wilbert, "The Beginnings of Pharmacy in America," *Am. J. Pharm.*, 79 (1907), page 399.

[2] This list with comments will be published in a subsequent "Fragment."

interest to you, and we therefore ask your acceptance of these originals for your Museum. We have made photographic copies which we are keeping in our own collection." Every one interested in the history of American pharmacy will add his thanks to those expressed by the writer for the generosity shown by our English confreres.

Now that we are in possession of two such valuable lists, their photographic reproduction seems to be called for at the earliest date possible.

The date of both lists is that of 1785. This very fact reveals that although the former colonies had declared their political independence, pharmaceutically they were still dependent upon the mother country.

The longer of the two invoices here presented is the one of Christopher, Jr., and Charles Marshall, the two sons of Christopher Marshall. Born in Dublin, Ireland, in 1709, the father had established himself in the drug business in 1729, in Philadelphia, at Front and Chestnut Streets. In 1735 he purchased a property on the south side of Chestnut Street west of Second Street, where he continued in business. His sons became his partners in 1765, and succeeded, in 1772, to the business. Of Charles, who was the active manager, his biographer writes[1] that he "was an apothecary, druggist, botanist and chemist," whatever these terms may imply. Interpreted in the light of his time, their significance may be readily understood as revealing a man of broad scientific attainments. If we learn that "Country doctors drew upon the Marshall store for their supplies," we can readily understand why such large quantities of certain items were ordered.

The first of the two invoices is, herein, photographically reproduced.

In the comments on the lists the following abbreviations have been used:

E. or Edinb., for *Pharmacopœia Edinburgensis, viz.*, the edition referred to by Lewis in his commentary.

Kopp. for Hermann Kopp, *Geschichte der Chemie*, 1843 to 1847.

Lewis, for William Lewis, *The Dispensatory*, etc., London, 1753.

L., or Lond., for *Pharmacopœia Londinensis*, also the edition referred to by Lewis in his commentary.

1. Antimon. Diaph Lot..... lb. 6

Antimonium Diaphoreticum was official in the Edinb. and was prepared by heating to a red heat antimony (*i. e.*, the sulphide) and nitre. "This calx, unwashed, is called *Antimonium Diaphoreticum Nitratum*." When washed repeatedly, it "is named *Antimonium Diaphoreticum Dulce*." (Lewis, page 346.) It is apparently the latter that was ordered. For its chemical composition and modifications of the method of preparation, also synonymy, see Kopp IV, page 108.

2. Antimon. Panacea Rub..... lb. i

Panacea Antimonii was prepared according to Lewis by heating to a red heat a mixture of antimony, nitre, common salt and charcoal. "In the bottom" of the fused, cold mass, "will be found a quantity of regulus, above this a compact liver-coloured substance, and on the top, a more spongy mass: this last is to be reduced into powder, edulcorated with water, and dried, when it appears of a fine golden colour." Lewis, page 351. For the chemical history of *Panacea antimonialis*, see Kopp, IV, page 104.

---

[1] Daniel B. Smith, *Jour. Phila. Coll. Pharm.*, vol. 2 (Jan. 1830), page 255. See also Joseph W. England, "The First Century of the P. C. P. (1821–1921), page 28.

Invoice of Sundries which Joseph Gurney Bevan Druggist in London is desired to Ask to Christopher Wm & Charles Marshall of Philad agreable to their Letter to him of January 3d 1785

Cent Cpt
Nov 4 f 038

Ol Antimon Diaph Lot	46	
Panacea Rub	4/	
Sulph Aurat	43	
Ag Fort Dup	440	
Bac Lauri	456	
Bol Armenia	Cwt 1	
Cinnab Factit Qud	44	
Nativ Qud	42	
Coccionell	44	
Coral Alb ppt	46	
Cort Rubus Opt	460	
Cor Martis Adstring	44	
Aperien	440	
Vrettator	428	
Extract Cicuta	42	
Essent Burgamot	46	
Flo Martial	42	
Hord Perlatum	Cwt	
Gum Arabic	430	
Asphaltum	43	
Opal	48	
Mastich	46	
Sang Dracon	46	
Succin	48	
Lap Calaminar ppt	425	
Mere Dracis Alb	42	
Ver Qud	430	
Milliped ppt	43	
Coul Cancror ppt	412	
Ol Vitrioli Twenty hundred Pounds in Carboys at 1 Cwt Each		
Amygd Dulc Pec	412	
Cinnamom Ver	4/	
Origanum	42	
Rhodii	5/	
Rad Althaea	412	
Angelic	44	
Bryonic	46	
Curcume	412	
Paonic	44	
Columb	44	
Rhei if from 7 to 8	428	
Ras Santill Citrin	48	
Rub Ver	410	
Sem Cardam Min	43	
Sal Polychrest	46	
Prunell	428	
Vitriol	42	
Diuretic Tolet	43	
Spr Sal Fort	420	
Succ Kermes	42	
Tart Vitriolat Chrystl	44	
Vitriol Alb	456	
Doz Glyster Pipes	20 Doz	

Invoice Continued

Lancetts Common in Cases	12 doz
Pill Boxes	6 Gro
Pocket Instruments in Cases	1/2 doz
Tierces Bottoms finish'd fit for Jalap Ipeca &c	2 doz

* as last marked ones for Course

White Flint Bottles Neat Shape

* 416 wide mouth	1 doz
* 48 d°	1/2 doz
* 416 wide mouth to Lacq & Coum	1 doz
* 48 Dillo	1/2 doz

3. Antimon. Sulph. Aurat..... lb. 3

Sulphur Auratum Antimonii. Edinb. This was prepared by adding "spirit of vitriol" to a solution of the "Scoriæ of regulus of antimony." "... a powder will precipitate, which is to be washed with water, till perfectly edulcorated and freed from its ill smell." Lewis, page 349. See also Kopp, IV, page 104.

4. Aq. Fort Dup..... lb. 40

Aqua fortis duplex, Edinb. Whereas *Aqua fortis,* Lond. was prepared by heating nitre with uncalcined vitriol, the Edinb. preparation was made from "vitriol calcined to whiteness." Lewis, page 288. For the chemical history of nitric acid, see Kopp, III, page 228.

5. Bac: Lauri..... lb. 56

"*Laurus* [L. E.] *laurus vulgaris* C. B. The bay tree; its leaves and berries." Lewis, page 149.

6. Bol. Armenia..... 1 cwt.

"*Bolus Armena* [L. E.] Pure Armenian bole...." Lewis, page 97.

7. Cinnab. Factit Crud..... lb. 4

"*Cinnabaris Factitia.* Artificial Cinnabar. Lond." Made by heating quicksilver and sulphur and subliming the cold, powdered product. Lewis, page 331. For its chemical history, see Kopp, IV, page 184.

8. Cinnab Nativ Crud..... lb. 2

"*Cinnabaris Nativa;* [E] native cinnabar." Lewis, page 115. Also see Kopp, *l. c.*

9. Coccionell..... lb. 4

"*Coccionella* [L. E.] cochineal." Lewis, page 116.

10. Coral Alb. pp..... lb. 6

"*Corallium Album,* [E] *et Rubrum;* [L. E.] white and red coral. Lewis, page 118. See also under "Preparationes simpliciores." *Ibid.*, page 231.

11. Cort Ruber Opt..... lb. 60

"*Peruvianus Cortex* [L. E.] Peruvian bark." Lewis, page 178.

12. Croc Martis Adstringens..... lb. 4

"*Crocus Martis Astringens.* Astringent Crocus of Iron. Edinb. This is made from the opening crocus of iron (see No. 13) by reverberating it for a long time in the most extreme degree of heat." Lewis, page 319. For the chemical history of the oxides of iron, see Kopp IV, page 144.

13. Croc Martis Aperiens..... lb. 10

"*Crocus Martis Aperiens.* Opening Crocus of Iron, Edinb....made by" heating *Mars Sulphuratus,* Sulphurated Iron, until "it assumes a red color." (Oxidation of sulphide to oxide.) "It is not different from the rust of iron, gently calcined in a crucible to redness." Lewis, page 318. Comp. also Kopp IV, page 144.

14. Croc Mettalor..... lb. 28

"*Crocus Metallorum.* (Mispelled in the invoice.) Crocus of Metals, Edinb." "The mixture of antimony and nitre.... is to be injected into a red-hot crucible; and when the detonation is over, separate the reddish metallic matter from the whitish crust, and edulcorate with water." Lewis, page 345. For the chemical history of antimony and its preparations, see Kopp, pages 99 to 109.

15. Extract Elicuta..... lb. 2

For information concerning this preparation, the writer will be greatly obliged to any reader who can identify it.

16. Essent Burgamot..... lb. 6

Lewis does not enumerate Essence of Bergamot either in the chapter on "Oils by Expression" or that on "Oils by Distillation." Neither does the prime find a place in the index. For a brief account of the history of this product, the reader may be referred to page 121 of the *Pharmacographia* by Flueckiger and Hanbury. The reader will note the spelling in the invoice.

17. Flo. Martial..... lb. 2

The London Pharmacopœia gave directions for its sublimation from a mixture of "Colcothar of green vitriol washed or iron filings" and "Sal ammoniac," The Edinburgh Pharmacopœia suggests iron filings. Lewis, page 319. For the chemical history of the oxides of iron see Kopp IV, page 144; for that of the chlorides, page 149.

18. Hord. Perlatum..... 1 cwt.

"*Hordeum Perlatum dictum* [L] Pearl barley, prepared in Germany and Holland, by grinding the shelled barley into little round granules, which appear of a kind of pearly whiteness." Lewis, page 139.

19. Gum Arabic..... lb. 30

"*Gummi Arabicum;* [L. E.] gum Arabic." Lewis, page 135.

20. Gum Asphaltum..... lb. 3

"*Bitumen Judaicum;* [L. E.] *asphaltus.* Jews pitch." Lewis, page 97.

21. Gum Copal..... lb. 8

"*Copal;* [E] a resin obtained from several sorts of large trees growing in New Spain." Lewis, page 118.

22. Gum Mastich..... lb. 6

"*Mastiche;* [L. E.] Mastich; a resin exuding from the lentisc tree.... and brought from Chio...." Lewis, page 158.

23. Gum Sang Dracon..... lb. 6

"*Sanguis Draconis* [L. E.] Dragons blood, so called; a resin brought from the East Indies..." Lewis, page 198.

24. Gum Succin..... lb. 8

"*Succinum;* [L. E.] Amber; a solid, brittle, bituminous substance... the largest quantities are met with along the coasts of Polish Prussia and Pomerania." Lewis, page 213.

25. Lap. Calaminar pp..... lb. 25

Under "the preparation of earthy and such other pulverable bodies as will not dissolve in water" is enumerated "*Lapis calaminaris,* calamine, previously calcined for the use of those who make brass L. Where this is not to be had, the mineral may be calcined by heating it three times red hot, and quenching it as often in water." Lewis, page 231. For the chemical history of this native zinc carbonate, see Kopp, IV, page 15.

26. Merc. Praecip. Alb..... lb. 2

"*Mercurius Præcipitatus Albus.* White Precipitate of Mercury, Lond." was made by adding a solution of "any fixt alcalnie salt" to a solution of "sublimate corrosive mercury" and "sal ammoniac" and washing the precipitate. Lewis, page 339. For the medicinal application of mercury preparations, see Kopp, IV, page 179. For the modern method of making ammoniated mercury, see any of the dispensatories.

27. Merc. Vir. Crud..... lb. 30

"*Mercurius Præcipitatus Viridis.* Green Precipitate of Mercury, Edinb." Lewis, page 340. According to this commentator, it is prepared by adding to a solution of corrosive sublimate a "tincture" prepared by digesting copper filings in "spirit of sal ammoniac." Of the product resulting upon evaporation the author states: "This differs from sweet precipitate in containing an admixture of copper, which renders it an emetic too rough to be used internally with safety; and hence the present practice has almost entirely rejected it." Yet our inventory reveals an order for 30 lbs.

28. Milleped. pp..... lb. 3

"*Millepedæ;* [L. E.] Woodlice, hoglice, flaters. These insects are found in cellars, under stones and in cold moist places...." Lewis, page 161.

"*Millepedarum Præparatio.* The preparation of Millepedes. Lond. The millepedes are to be inclosed in a thin canvas cloth, and suspended over a hot spirit of wine, in a close vessel, till they are killed by the steam and rendered friable. Edinb. Let them be included in a proper vessel, and dried with a very gentle heat. After the same manner Bees are to be prepared." Lewis, page 237.

In 1788 Col. May, a New Englander, crossed the state of Pennsylvania in search of a home in the new Northwest Territory (near Marietta, O.). On his way he observed superstitious customs of German settlers which he ridiculed. (See Historical Fragments, No. 16.) Yet about the same time an enlightened Philadelphia apothecary orders 3 lbs. of powdered millipedes official in both the London and Edinburgh pharmacopœias, the former the literary product of the scientific genius of the College of Physicians of London, the latter of that of the illustrious College of Physicians of Edinburgh.

29. Ocul Cancror pp..... lb. 12

"*Cancrorum Oculi dicti* [L. E.] crabs' eyes so called: stony concretions found in the head, or rather stomach, of the.... craw fish." Lewis, page 104. For their preparation, see page 231.

30. Ol. Vitrioli. Twenty hundred Pounds in Carboys at 1 cwt Each.

"*Spiritus Vitriolis tenuis, et fortis* (*oleum dictus* E.).... Weak and strong spirit or Oil of Vitriol...." Lewis, page 283. Lewis quotes the directions of both the London and Edinburgh pharmacopœias. For the chemical history of the preparation of sulphuric acid, see Kopp, III, page 305.

31. Ol. Amygd. Dulc Rec..... lb. 12

"*Oleum Amygdalarum.* Oil of Almonds [L. E.]. This is prepared from the sweet and bitter almonds indifferently; the oils obtained from both sorts being altogether the same." Lewis, page 255. The attribute *dulce*, sweet, is not used by Lewis, who makes no reference to a bitter oil of almonds either in the chapter on "Essential Oils" or the index. However, he makes mention of "a water distilled from them," page 78.

32. Ol. Cinamom̃ Ver..... ℥ ij

"*Oleum Cinnamomi.* Oil of Cinnamon [L. E.]." Lewis, page 262. Lewis does not use the attribute verum, possibly because he makes no mention of an oil of cassia.

33. Ol. Origanum..... lb. 2

"*Oleum Origani Essentiale.* Essential Oil of the leaves of Origanum, L. E." Lewis, page 264.

34. Ol. Rhodii..... ℥ j

"*Oleum Ligni Rhodii Essentiale,* Essential Oil of Rhodium wood, Lond." Lewis, page 265.

35. Rad. Althæa..... lb. 12

"*Althæa* [L. E.] *althæa Dioscoridis & Plinii, C. B.* Marshmallow grows wild in marshes ...." Lewis, page 74.

36. Rad. Angelic..... lb. 4

"*Angelica* [L. E.] *angelica sativa C. B. imperatoria sativa Tourn.* Garden angelica; the roots, leaves and seeds." Lewis, page 80.

37. Rad. Bryoniæ..... lb. 6

"*Bryonia Alba:* [E.] *bryonia asperasieve alba baccis rubris, C. B.* White bryony or wild vine; the roots." Lewis, page 99.

38. Rad. Curcumæ..... lb. 12

"*Curcuma* [E.] Turmeric; a root brought from the East Indies." Lewis, page 121.

39. Rad. Pæoniæ..... lb. 4

"*Pæonia;* [L. E.] *pæonia folio nigricante splendido, quæ mas C. B.* Male peony—*pæonia femina flore pleno rubro majore C. B.* female peony. These plants are cultivated in our gardens...." Lewis, page 174.

40. Rad. Columb..... lb. 4

No reference to this was found in Lewis either under Calumba, Columbo, Jateorhiza or Menispermum.

41. Rad. Rhæi—from 7/ to 8/..... lb. 28

"*Rhabarbarum;* [L. E.] Rhubarb; the root of a plant of the dock kind, which grows spontaneously in China and endures the cold of our own climate." Lewis, page 189. "From 7/ to 8/" may indicate the range of price, *viz.*, shilling. Can any reader interpret the symbol or abbreviation between the words "Rhæi" and "from?"

42. Ras Santill Citrin..... lb. 8

"*Santalum citrinum* [E.] Yellow Saunders." Lewis, page 198. "Ras" may be an abbreviation for rasped.

43. Ras Santill Rub. Ver..... lb. 10

"*Santalum Rubrum* [L. E.] Red saunders; a wood brought from the East Indies...." Lewis, page 199.

44. Sem. Cardam Min..... lb. 3

"*Cardamomum Minus* [L. E.] Lesser cardamom." The seed is said to be stronger than the "Greater cardamom" and "the only one now directed by the college." Lewis, page 106.

45. Sal Polychrest..... lb. 6

"*Sal Polychrestum.* Salt of many virtues, Edinb." It is made by heating nitre and sulphur. "This salt does not greatly differ from some that may be afforded at a cheaper rate, as is

well known in the shops; and little deserves the pompous title which the chemists have given it. It is composed of the acid of sulphur, and the alcaline basis of the nitre." Lewis, page 292. For the chemical history of potassium sulphate, see Kopp, IV, page 20.

46. Sal Prunell..... lb. 28

"*Sal Prunellæ. Edinb*.... This preparation was formerly in great esteem, and is sometimes still ordered in prescriptions. It is nevertheless built upon an erroneous foundation, which supposed, that the nitre was purified by the deflagration it undergoes upon injecting a little sulphur on it" (when fused). The molten—and, if chemically treated, modified—nitre was poured on to a slab or into a mould. Lewis, page 292. For the origin of the name, see Kopp, III, page 223. For the mixture of nitrate and sulphate known by this name see Kopp, IV, page 19. From the amount ordered it becomes apparent that in the New World, Lewis's remark "and is still sometimes ordered in prescriptions" was understating the case.

47. Sal Vitriol..... lb. 2

"*Sal Vitrioli*. [L.] *Gilla vitrioli* [E.] Purified white vitriol, called Salt, or Gilla of Vitril." Lewis, page 272. It was purified by recrystallization. For the chemical history of zinc sulphate, see Kopp, IV, page 122.

48. Sal Diuretic Foliat..... lb. 3

"*Sal Diureticus*, Lond. *Tartarus Regeneratus* Edinb. The Diuretic Salt, or Regenerated Tartar, otherwise called Terra Foliata Tartari. Edinb. "Put any quantity of dry salt of tartar, powdered, into a large glass vessel; and pour thereon, little by little, as much distilled vinegar as is necessary to saturate it," etc. Lewis, page 294. For the chemical history of potassium acetate see Kopp, page 340.

49. Sp. Sal Fort..... lb. 20

"*Spiritus Salis Marini Glauberi*. Glauber's Spirit of Sea Salt." Both the London and Edinburgh pharmacopœias direct it to be prepared by the distillation of "sea salt" and "spirit or oil of vitriol." Lewis, page 286. In the Edinburgh Pharmacopœia there also was official a "Spiritus Salis, Spirit of Salt" made by heating "sea salt" with "powdered bricks." Of this process the commentator says: "Brick earth, and other substances of this kind, contain a small quantity of vitriolic acid, whose known property it is to disengage the acid of the sea salt, and which is the only part of them of use in this process. The quantity of spirit therefore, obtained by these intermedia, is only in proportion to that of the acid contained in them, which is extremely small." Lewis, page 287. For the chemical history of hydrochloric acid, see Kopp, III, page 346, who quotes Glauber's citation of the older methods which employed clay and similar substances. *Ibid*, page 347.

50. Succ. E. Kermes..... lb. 2

"*Kermes;* [L. E.] a round grain... found (in Spain...) adhering to the branches of *ilex aculeata cocciglandifera C. B.* These grains appear, when fresh, full of small ovula, or animalcules, of which they are the nidus. On expression, they yield a red juice... this is brought to us from the south of France." Lewis, page 145. For the origin of the word and its evolution into carmine, also for the story of the replacement of the Mediterranean drug by the Mexican insect, see Wootton, *Chronicles of Pharmacy*, II, page 50.

51. Tart. Vitriol Chryst..... lb. 4

"*Tartarum Vitriolatum*. Vitriolated Tartar." The London Pharmacopœia directs it to be prepared by double decomposition between "green vitriol" and "salt of tartar, or any other alkaline salt;" the Edinburgh Pharmacopœia by the addition of "oil of vitriol" to "oil of tartar per deliquum" until "effervescence ceases." Lewis, page 290. For the chemical history of potassium sulphate, see Kopp, IV, page 19.

52. Vitriol Alb..... lb. 56

"*Vitriolum Album* [L. E.] White vitriol, or vitriol of zinc; found in the mines of Goslar." Lewis, page 226. He states "We rarely meet with this sort of vitriol pure" also that it can be purified by recrystallization, but he does not mention its artificial production except in a general way under "Vitriolum." For the chemical history of zinc sulphate see Kopp, IV, page 122.

53. Bone Chlyster Pipes..... 20 doz.
54. Lancetts, Common w Cases..... 12 doz.
55. Pill Boxes..... 6 gro.
56. Pocket Instruments in Cases..... $^1/_2$ doz.
57. Surcise Bottoms, finest fitt (?) for (?)

[Can any reader explain this and the following items?]

58. Surcise Jalap. Ipecac, etc..... 22 doz.
59. Surcise as last we had were too Course.
60. White Flint Bottles, Neat Shap'd.
61. White lb. 16 with..... 1 doz.
62. White lb. 8 with..... $^1/_2$ doz.
63. White lb. 16 wide mouth, Lacq.^{d} corun (?)..... 1 doz.

[Who can explain this item?]

64. White lb. Ditto..... $^1/_2$ doz.

Of so-called crude drugs and their "simple preparations" (*i. e.*, præparata) we find the following grouped according to the natural kingdoms from which they are derived:

Mineral

No. 6. Bol. Armenia
No. 8. Cinnab. Nativ Crud
No. 20. Gum Asphaltum
No. 25. Lapis Calaminar pp

Vegetable

No. 5. Bac : Lauri
No. 11. Cort Ruber Opt
No. 18. Hord Perlatum
No. 19. Gum Arabic
No. 21. Gum Copal
No. 22. Gum Mastich
No. 23. Gum Sang Dracon
No. 24. Gum Succin
No. 35. Rad Althæa
No. 36. Rad Angelic
No. 37. Rad Bryonia
No. 38. Rad Curcuma
No. 39. Rad Pæonia
No. 40. Rad Columb
No. 41. Rad Rhæi
No. 42. Ras Santill Citrin
No. 43. Ras Santill Rub. Ver.
No. 44. Sem Cardam Min.

Animal

No. 9. Coccionell
No. 10. Coral Alb. pp.
No. 28. Milleped. pp.
No. 29. Ocul Cancror
No. 50. Succ. E. Kermes

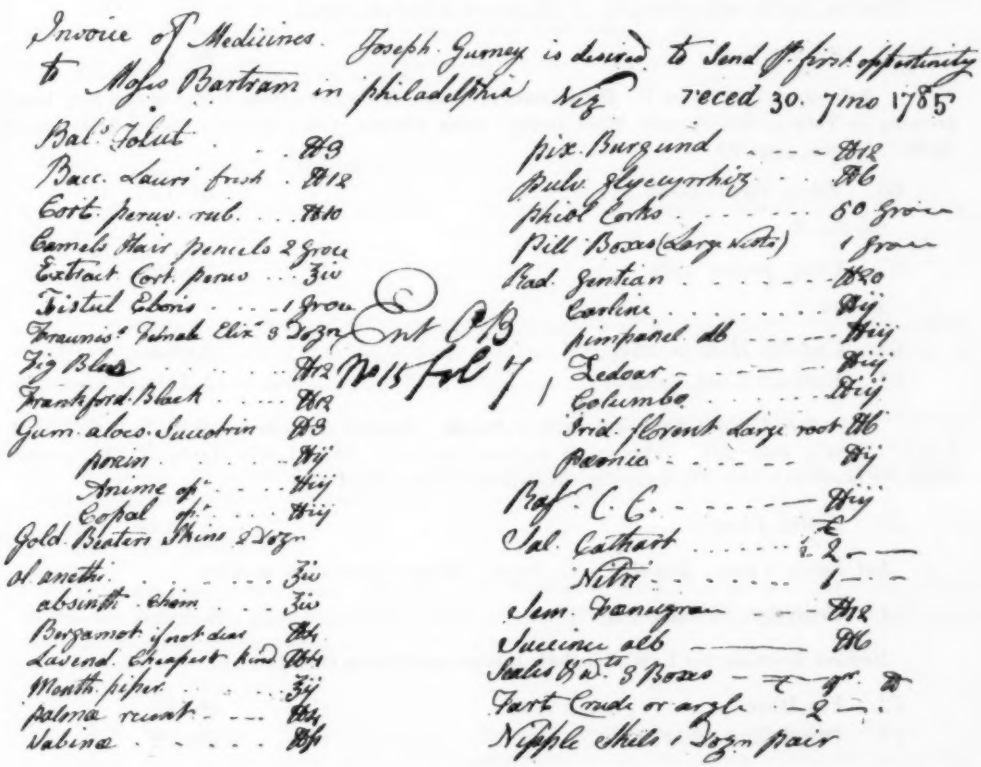
Of what Lewis designates "Metallic Preparations," the following are called for:

No. 1. Antimon. Diaph. Lot
No. 2. Antimon. Panacea Rub
No. 3. Antimon. Sulph. Aurat
No. 7. Cinnab. Factit Crud
No. 12. Crocus Martis Adstringens
No. 13. Crocus Martis Aperiens
No. 14. Crocus Metallor
No. 17. Flo. Martial
No. 26. Merc. Præcip Alb.
No. 27. Merc. Vir. Crud

Of "Salts and Saline Preparations:"

No. 4. Aq. Fort Dup
No. 30. Ol. Vitrioli
No. 45. Sal Polychrest
No. 46. Sal Prunell
No. 47. Sal Vitriol
No. 48. Sal Diuretic Foliat
No. 49. Sp. Sal Fort
No. 51. Tart. Vitriol Christ.
No. 52. Vitriol Alb.

In the introduction to this paper, which was presented by title at the Portland meeting of the A. PH. A. the statement is made that the photographic reproduction of the two historically valuable lists "seems to be called for at the earliest date possible." If the writer has failed to do so, the delay has been caused by this failure to secure at an earlier date even a brief statement concerning Moses Bartram.


Invoice of Medicines. Joseph Gurney is desired to Send ye first opportunity
to Moses Bartram in philadelphia Nez receed 30. 7mo 1785

Bal.° Tolut . . . ℔ß
Bacc. Lauri fresh . ℔ß
Cort. peruv. rub. . . ℔ß
Camels Hair pencils 2 Gross
Extract Cort. peruv. . . Zvi
Fistul Ebonis . . . 1 Gross
Fraunis.° Jalnab Elix.° 3 Dozn
Fig Blue . . . . . ℔ß
Frankford Black . . . . . ℔ß
Gum aloes Succotrin ℔ß
Arabin . . . . ℔ij
Anime ℔ij
Copal ℔ij
Gold Beaters Skins 2 Dozn
Ol anethi . . . . . Zij
absinth. chem. . . Zij
Bergamot if not dear ℔ß
Lavend. Cheapest kind ℔ß
Mouth. piper . . . . Zij
palma recent . . . ℔ß
Sabina . . . . . ℔ß

pix. Burgund . . . . ℔ß
Pulv. Glycyrrhiz . . . ℔ß
phial Corks . . . . . 80 Gross
Pill Boxes (Large Vials) 1 Gross
Rad. Gentian . . . . . ℔ß
Carline . . . . . ℥ij
pimpanel ab . . . . . ℥iij
Ledear . . . . . ℥iij
Columbæ . . . . . ℥iij
Irid. florent large root ℔ß
Paonie . . . . . ℥ij
Raf. C. C. . . . . ℥iij
Sal. Cathart . . . . . £ 2 — —
Nitri . . . . . 1 — —
Sem. Fænugræc . . . ℔ß
Succinci alb . . . . . ℔ß
Scales & D.° 3 Boxes — £ gr. ℔
Tart. Crude or argle — 2 —
Nipple Shells 1 Dozn pair

This has fortunately been supplied by the editor of THIS JOURNAL who has favored the writer with the following communication:

"Frank Willing Leach, in his account of the Bartram family, published in the *North American*, December 20, 1908, states that Moses Bartram, son of the botanist was born August 16, 1732. Mr. Leach says that he seems at first to have followed the sea, as he was Master of the scow Corsley, May 26, 1756. Soon after, he entered into partnership with his brother, Isaac, in the drug business, in which he remained until his death. He was a member of the American Society held at Philadelphia for the Promotion of Useful Knowledge, at the time of its consolidation with the American Philosophical Society in January, 1769. In 1770, he was instrumental in organizing a society for the cultivation of silk. Although a Quaker, he adhered to the cause of the Colonies at the outbreak of the Revolution. He

served as Chairman of the Committee to look after the families of soldiers in the Second Battalion, 1776. His sympathy with the Colonists brought him into conflict with the Society of Friends. Accordingly, in coöperation with other prominent Friends, he helped organize, in 1781, the Society of Free Quakers. He was one of their leaders for many years. He was commissioned Justice of the Court of Common Pleas for Philadelphia County, September 3, 1776. He married Elizabeth Budd, July 10, 1764. They had twelve children—Thomas Say, Moses, Benjamin, Rebecca Say, Archibald, Robert Mendenhall, William, Joseph Budd, Betsy, George Washington, Anna and Rachel. Moses Bartram died at 69 (old number) Arch Street, December 25, 1809, of a stroke of paralysis."

The facsimile reproduction of this second list precedes.

65. Bals Tolut..... lb. 3

"*Balsamum Tolutanum* [L. E.] Balsam of Tolu. This flows from a tree of the pine kind, growing in Tolu in the Spanish West Indies; from whence it is brought to us in little gourd shells." Lewis, page 92.

66. Bacc. Lauri fresh..... lb. 12

See No. 5.

67. Cort. peruv. rub..... lb. 10

See No. 11.

68. Camels Hair pencils..... 2 groce
69. Extract Cort. peruv..... 3 IV

"*Extractum Corticis Peruviani molle et durum.* Extract of Peruvian Bark, soft and hard, Lond." Lewis, page 251. This is an aqueous extract. Of it Lewis states: "This extract might be made to better advantage by the assistance of spirit of wine...."

70. Fistul Eboris..... 1 groce

Lat. fistula, a tube; and *ebur, oris.*, ivory. Hence tubes made of ivory.

71. Fraunis^{s}. Female Elix^{r}..... 3 dozen

Neither Wootton nor LaWall include this preparation in their indexes.

72. Fig Blue..... lb. 12
73. Frankford, Black..... lb. 12

Ger. *Frankfurter Schwarz, Drusenschwaerze.* A black pigment obtained by charring wine yeast or the dregs of grapes, hence *Rebenschwarz*, in closed iron cylinders. The carbonaceous mass is pulverized and levigated. Frankfurt black is used by painters, also in the preparation of printer's ink. Brookhaus, *Kerwersatious-Lexikon.*

74. Gum, aloes. Succotrin..... lb. 3

"*Aloe* [L. E.] Aloes is the inspissated juice of certain plants of the same name." Lewis, page 72. He differentiates between three kinds, *viz.:* Aloe Socotrina, from Socotra; Aloe Hepatica, hepatic, Barbadoes, China, or common aloes; and Aloe Caballina, Guinea, fetid, caballine, or horse aloes.

75. Gum, porcin..... lb. ij

This item could not be found in Lewis, Trommsdorff, Schelenz, Wootton, or LaWall. The writer will be obliged to any reader who knows of a reference.

75*b*. Gum, Anime op..... lb. iij

"*Anime;* [E.] a resin exuding from the trunk of a large American tree, called by Piso Jetaiba, by the Indians courabril." Lewis, page 81.

76. Gum, Copal op..... lb. iij

"*Copal;* [E.] a resin obtained from several sorts of large trees growing in New Spain." Lewis, page 118.

77. Gold Beaters' Skins..... 2 dozen
78. Ol. Anethi..... ℥ IV

"*Oleum Absinthites.* Oil of Wormwood Tops." Lewis, page 492. One of the "Olea per Infusionem et Decoctionem. Oils by Infusion and Decoction." *Ibid.*

79. Ol. Bergamot if not dear..... lb. 4

See No. 16.

80. Ol. Lavend. Cheapest kind..... lb. 4

"*Oleum florum Lavendulæ Essentiale.* Essential Oil of Lavender *flowers* [L. E.]." Lewis, page 263.

81. Ol. Menth. piper..... ℥ ij

"*Oleum Menthæ Piperitidis Essentiale.* Essential Oil of the leaves of Pepper Mint, Lond." Lewis, page 264. Not the "Oleum Menthæ Essentiale. Essential Oil of *the leaves of* Common Mint, L. E." *Ibid.*

82. Ol. palmæ recent..... lb. 4

"*Palma;* [E.] *palma foliorum pediculis spinosis, fructu pruniformi, luteo, oleoso Sloan.* The palm oil tree; the oil obtained from the kernels of the fruit." Lewis, page 174.

83. Ol. Sabinæ..... lb. ss

"*Oleum Sabinæ Essentiale.* Essential Oil of Savin *leaves, L. E.* Savin is one of the plants which the Edinburgh pharmacopœia directs to be lightly fermented before the distillation; this, however, is not very necessary." Lewis, page 265.

84. Pix. Burgund..... lb. 12

"*Pix burgundica;* [L. E.] Burgundy pitch.... Dale informs us, from the relation of a gentleman who saw the preparation of this commodity in Saxony (from whence we are chiefly supplied with it) that it is no more than common turpentine boiled a little." Lewis, page 184. According to Flueckiger and Hanbury (*Pharmacographia*, 2nd ed. (1879), p. 616) the term is restricted by English druggists and French "pharmacologists" to the oleoresin of the Norway Spruce Fir "widely distributed throughout the Northern and mountainous parts of Central Europe, but in parts of the continent other than France "is allowed to include the turpentines of other Coniferæ." Salmon (Compleat English Physician, 1693, page 1031) is quoted as stating that "it is brought to us out of Burgundy, Germany and other places near Strasburgh."

84*b*. Pulv. Glyccyrrhiz..... lb. 6

"*Glycyrrhiza;* [L. E.] *glycyrrhiza siliquosa vel Germanica C. B.* Licorice; the root." Lewis, page 134.

85. Phiol Corks..... 50 groce
86. Pill Boxes (Large Nests)..... 1 groce

87. Rad. Gentian..... lb. 20

"*Gentiana;* [L. E.] *gentiana major lutea C. B.* Gentian; the root. This plant is found wild in some parts of England: but the dried roots are most commonly brought from Germany ....." Lewis, page 133.

88. Carlini..... lb. ij

"*Carlina* [*E.*] *carlina acaulis magno flore albo C. B.* Carline thistle; the root. This is a very prickley sort of thistle growing spontaneously in the southern parts of France, Spain, Italy and the mountains of Switzerland; from whence the dried roots are brought to us." Lewis, page 108.

89. Pimpinel. alb..... lb. iij

"*Pimpinella Saxifraga* [L. E.] Burnet saxifrage; the root. Three sorts of this plant are taken notice of by medical writers: (1) *Pimpinella saxifraga major, umbella candida C. B.* This is the species celebrated by the German writers under the name of pimpinella alba: it is not very common tin this country, and therefore our markets have been generally supplied with the following: (2) *Pimpinella saxifraga minor foliis sanguisorbæ*.... (3) *Pimpinella saxifraga minor folies dissectis*.... "All of these plants seems to be possessed of the same qualities... Our college, instead of the first which has been generally understood as the officinal sort, allow either of the other (which are more common) to be used promiscuously." Lewis, page 182.

90. Zedoar..... lb. iij

"*Zedoaria* [L. E.] Zedoary; the root of an Indian plant....." Lewis, page 227.

91. Columbo..... lb. iij

According to Flueckiger and Hanbury (*Pharmacographia*, 2nd Edition, page 23). Radix Columbo"... was brought to Europe by the Portuguese in the 17th century ... No further attention was paid to the drug for nearly a century, when Percival in 1773 reintroduced it.... From this period it began to come into general use. J. Gurney Bevan, a London druggist, writing to a correspondent in 1777 alludes to it as 'an article not yet much dealt in and subject to great fluctuation?' It was in fact at this period extremely dear and in Mr. Bevan's stockbooks is valued in 1776 and 1777 at 30s. per lb., in 1780 at 28s., 1781 at 64s., 1782 at 15s., 1783 at 6s. Columbo was admitted to the *London Pharmacopœia* in 1788." Hence Calumba was a "new remedy" at the time Moses Bartram ordered it. This accounts for its not being mentioned by Lewis in his *New Dispensatory* in 1753.

92. Irid. florent. Large root..... lb. 6

"*Iris florentina* [L. E.] *iris Florentina alba C. B.* Florentine orris; the root." Lewis, page 144.

93. Pæonia..... lb. ij

"*Pæonia;* [L. E.] *pæonia folio nigricante splendido, quae mas C. B.* Male peony—*pæonia fœmina flore pleno rubro majore C. B.* female peony. These plants are cultivated in our gardens on account of the beauty of their flowers: the female which is the largest and most elegant, and for this reason the most common, is the only one which the shops are supplied with." Lewis, page 174.

94. Bas, C. E..... lb. iij

The writer has been unable to decipher this item. He will be obliged to his readers for their interpretation.

95. Sal. Cathart..... C 2

Lewis describes two cathartic salts, *viz.*, the *Sal catharticus amarus* (*L.*) (page 195) and the *Sal catharticus Glauberi* of the Lond. and Edinb. pharmacopœias (page 291). The prime *Sal*

catharticus does not occur in the indexes of Wootton, LaWall or Thompson. No doubt, the first of the two salts enumerated is intended. Trommsdorff, in his *Woerterbuch* of 1812, under *Sal catharticum* refers the reader to "Bittersalz." Kopp, in his *Geschichte d. Chemie*, IV, page 52, makes the following statements: "Das Bittersalz wurde Ende des 17. Jahrhunderts von England aus bekannt. Nehemias Grew stellte es aus dem Wasser der Epsomer Mineralquelle dar..... Aus jener Zeit stammen die Namen..... *sal catharticum*. Der Gebrauch nahm zu, als man es bald auch in anderen englischen Quellen entdeckte; Georg und Franz Moult stellten es von 1700 an in grosser Menge aus dem Wasser von Shoottershill in Kent dar. Der Preis des Salzes wurde dadurch heruntergedrueckt, dass im Jahre 1710 ein gewisser Englænder Hoy entdeckte, dasselbe sei in der Mutterlange des Seesalzes enthalten, oder kœnne daraus durch Vermischen mit Eisenvitriol erhalten werden." Baumé in his price list of 1775 lists *Sel d'Epsom* at 12 livres per pound.

96. Nitri..... C 1

Sal Nitri is not mentioned as a prime in any of the indexes consulted (Lewis, Wootton, Thompson, Schelenz, Kopp, Trommsdorff). However, there can be little doubt if any, that nitre is meant. Lewis (page 166) makes the following statement: "Nitrum; (L. E.) Nitre or salt petre; a salt, extracted, in Persia and the East Indies, from certain earths that lie on the sides of hills, and artificially produced in some parts of Europe, from animal and vegetable matters rotted together (with the addition of lime and ashes) and exposed for a length of time to the air, without the access of which, nitre is never generated; the salt extracted from the earths, etc., by means of water, is purified by colature and crystallization." For an account of the history of nitre, see Kopp, *Gesch. d. Chemie* III, page 219. From this chemical historian we learn that the terms *sal nitrum* and *sal nitri* (also *halinitrum*) were used for a long time to differentiate our sodium nitrate from the *nitrum* of the ancients, our sodium carbonate (page 221).

97. Sem. Fœnugrec..... lb. 12

"*Fœnum Græcum* (L. E.) *fœnum græcum sativum C. B.* Fœnugreek; the seeds. This plant is cultivated chiefly in the southern parts of France, Germany and in Italy; from whence the seeds are brought to us. Lewis, page 130.

98. Succinu alb..... lb. 6

"*Succinum;* (L. E.) Amber; a solid, brittle, bituminous substance, dug out of the earth, or found upon the sea shores; the largest quantities are met with along the coasts of Polish Prussia and Pomerania. It is of white, yellow or brown colour...." Lewis, page 213. There may have been another reason why the order should specify "album" for Lewis, in his Latin index gives *Succinum griseum* as a synonym for *ambragrisea*.

99. Seales, 3 Boxes..... qr. lb.

100. Tart. Crude or argle..... 2

"*Tartarum* [L. E.] Tartar is a saline substance, thrown off from wines, after fermentation to the sides and bottom of the cask; it proves of a red or white colour....." Lewis, page 216. The English index gives "Argol" as prime. For the chemical history of this substance, see Kopp, *Gesch. d. Chemie* IV, page 347.

101. Nipple shels..... 1 dozen pair

FIFTIETH ANNIVERSARY MEETING OF THE JAPANESE PHARMACEUTICAL SOCIETY.

The proceedings of the fiftieth anniversary meeting of the Japanese Pharmaceutical Society will include a history of Educational Progress by Dr. Hattori. The editing of the History of Pharmacy is to be done by the editorial committee of Imperial University.

Dr. Keizo Ikeguchi of the Pharmacopœial Revision Committee has been elected *President* of the Japanese Pharmaceutical Society; he is also head of the Tokyo College of Pharmacy; the *Vice-President* is Dr. Kintaro Ueno.

THE HISTORY OF NATIONAL PHARMACY WEEK.*

"Let us do modestly the things we can do and do them well, not merely talk about them. Every frequenter of our section meetings, every member of the ASSOCIATION at large, should each year make some contribution to the archives that are to be used by the future historian of American pharmacy." This call to duty was sounded in the paper entitled: "Writing Pharmaceutical Biography and History" (JOUR. A. PH. A., 18 (1929), 1032) which Dr. Edward Kremers contributed to the Section on Historical Pharmacy, at the Rapid City meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION. An editorial published in the March 1930, issue of the JOUR. A. PH. A. (Vol. 19, page 215), entitled: "Historical Inaccuracies" comments upon the importance and wisdom of Dr. Kremers' admonitions, as set forth in his paper.

Dr. Kremers' interest in and knowledge of the history of Pharmacy is profound and his enthusiasm for the subject is contagious. After hearing Dr. Kremers read his paper at Rapid City and then reading it when it was published in the JOURNAL, the writer was inspired to prepare this paper which deals with the subject upon which he is best qualified to write—the history of National Pharmacy Week.

ROBERT J. RUTH.
"Father of Pharmacy Week."

The idea from which National Pharmacy Week budded and grew to world-wide observance was born at the seventy-second annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, held at Hotel Statler, Buffalo, New York, in August 1924. The writer was, that year, Chairman of the Section on Practical Pharmacy and Dispensing and as such, was by established custom, obligated to deliver a Chairman's address at the opening session of the Section on Thursday, August twenty-eighth. The preceding weeks and days had been exceptionally busy ones and the writer arrived at the convention without a prepared address or an idea for one. The noon preceding the opening session found the situation unchanged and he left the meeting and the lure of convention atmosphere and retired to his room immediately after luncheon to engage in the distasteful task of writing under pressure.

Once at work, however, the theme for the address unfolded itself. Ideas came aplenty. In a surprisingly short time approximately 3000 words were set down on paper. They represented a composite of the ideas which had come to the writer concerning the problems confronting American Pharmacy—the result of many serious ponderings during the preceding months.

The address (JOUR. A. PH. A., 13 (1924), 1081) began with a summary of the evils which confronted American Pharmacy and ended with an outline of constructive suggestions in the form of remedies to correct the existing evils. One of the suggestions was a plea for public information concerning the practice of pharmacy and the plan for National Pharmacy Week was outlined. To quote from the address on page 1082, as published in the JOURNAL:

> "During the past year your Chairman has given much time to a deep study of the present plight in which American Pharmacy is confusedly struggling. An effort to write a comprehensive report finds your Chairman just as confusedly struggling as the conditions suggest a series of baffling circles with no clearly defined start or finish, reminding one of the sea charts of that delightful old bookkeeper characterized by the author of "Blowing Weather," a most refreshing book, depicting the apothecary of the early days of the 19th century. But we must remember that the old

* Prepared by the lamented Robert J. Ruth for the Section on Historical Pharmacy, Baltimore meeting, 1930.

bookkeeper's circles led to a very practical and pleasing conclusion, so we must try to make a start that we may seek the end.

* * * * * * * * * * *

"First, let us take up the main evils confronting our chosen profession."

And then on page 1084 in the JOURNAL:

"Your Chairman prays that you do not consider his address impertinent, nor does he think that much that he is saying is new to your minds, but he hopes to bring the foregoing once more to your attention, and to offer the following suggestions not in the form of recommendations, but it is his prayer that these suggestions will be given some thought on the part of the members of the ASSOCIATION and that they may be instrumental in forming a definite plan of action.

"First: It is essential to unite all pharmaceutical interests in a great movement for public information and constructive and protective legislation.

"Second: A 'National Pharmaceutical Week' could be inaugurated with specially written articles prepared by men of national prominence in pharmaceutical circles, appearing in newspapers and magazines throughout the nation; and speakers from our ranks addressing the Rotary, Kiwanis, Exchange, Lions and similar clubs, Chambers of Commerce, women's clubs, neighborhood clubs and other similar organizations throughout the United States, which are so very instrumental in shaping our national thought. Public health should be the keynote.

"Third: Radio broadcasting of a constructive nature, as has already been inaugurated in some of our colleges, should be continued on a more elaborate scale and also carried on by our Pharmacy Headquarters when it is complete and functioning, thereby educating the public in our favor."

As the completed manuscript was read over, it impressed the writer as being exceedingly bold and too lengthy. He went down to the lobby, met his good friend, Prof. Ivor Griffith, of Philadelphia, and asked him to go up to the room, look over the address and give his honest opinion. The remarkably talented Welshman obliged and the writer well remembers Dr. Griffith's advice when he had finished reading the address. Griffith said, "If you feel just that way about it, Bob, give the address exactly as you have written it."

The address was read before the Section at the opening session on the following day and was enthusiastically received. To quote from the abstract of discussion (JOUR. A. PH. A., 13 (1924), 1085):

"Charles H. LaWall said this address should go to all pharmacists; it should not be lost because of the few members here. In his opinion a sufficient number of reprints should be made for mailing to all officers of State Associations, all drug journals and colleges of pharmacy with the request that publicity and coöperation be given the plan. He made a motion accordingly and that the matter be referred to the Board of Directors, as to the financial outlay. * * * * * The motion was carried."

Subsequently 5000 reprints of the address were made and distributed in accordance with the recommendation contained in Dr. LaWall's motion.

In his editorial entitled: "Popularizing the Pharmacist" (JOUR. A. PH. A., 13 (1924), 886), Editor Eberle said:

"Chairman Robert J. Ruth of the Section on Practical Pharmacy and Dispensing, A. PH. A., presented a most interesting address at Buffalo, in which he brought out the importance of adherence to ethics by pharmacists in order to have pharmacy worthy of highest appreciation by the public. The keynotes of the address were calls to loyalty and service. He advocated pharmaceutical legislation that would serve the public, and a deeper interest by pharmacists in that which subserves the health of the people.

"He was optimistic in his views of the Pharmacy Headquarters Building which will unite pharmacy under one banner. 'All divisions of the drug industry,'

he said, 'had much in common, and public health would be conserved by such co-operation.'

"In the promotion of publicity for pharmacy, Chairman Ruth pointed out that a 'National Pharmaceutical Week' could be inaugurated, and for that purpose articles should be prepared and contributed to newspapers and magazines; speakers should address the various business and social clubs throughout the country and in these addresses public health should be the keynote. He advocated the broadcasting of talks so that the general public might be advised not only of the mission and activities of pharmacy but, specifically, of the progress being made with the fund for A. PH. A. Headquarters, whereby pharmacists hope to render additional needful public service.

"He considered that pharmacists were not taking full advantage of their opportunities to acquaint the public with pharmacy nor did they combine their efforts with those of the laity for bringing about not only a better understanding of the purposes of pharmacy, but also legislation which will serve the public best. The chairman insisted that hospital pharmacists should contribute to the columns of medical and hospital periodicals as well as to pharmaceutical publications, in order that the service of pharmacy may be better understood and appreciated; articles relating to pharmacy should also be prepared for magazine sections of papers and magazines of national circulation.

"In concluding his address, Chairman Ruth advised that pharmacists in all states should follow the example set by Massachusetts, and hold conferences with members of the legal profession so that legislation relating to pharmacy may better serve the intended purposes. There was so much in the address that interested those in attendance at the meeting of this section, that it was voted to give the address the widest possible publicity."

During the following winter, 1924–1925, plans were laid for the first National Pharmacy Week observance and the last week in October was selected as the time for the initial effort at concerted dissemination of public information. Because these dates conflicted with the large publicity campaign of a manufacturing company which had its advertising contracted for and dates announced, the time for Pharmacy Week was later changed from October 25th–31st, to October 11th–17th. At this point, the writer wishes to pay tribute to Dr. Frederick B. Kilmer, of New Brunswick, New Jersey, who was an early crusader for the success of the Pharmacy Week movement. Dr. Kilmer's efforts were largely instrumental in contributing to the marked impetus with which the Pharmacy Week movement embarked upon its world-wide mission. Because of his interest in Pharmacy Week, Dr. Kilmer headed an Advisory Committee composed of the following men prominent in Pharmacy, who represented every section of the country:

Ambrose Hunsberger, Phila., Pa.	Charles T. Hull, New Haven, Conn.
Henry V. Arny, N. Y. College of Pharmacy	W. H. Bradbury, Washington, D. C.
W. H. Cousins, Dallas, Texas	J. W. Milner, Florence, Ala.
A. C. Tienkin, Lindsay, Calif.	J. G. Beard, Chapel Hill, N. C.
S. B. Key, Jackson, Miss.	A. L. I. Winne, Richmond, Va.
Robert P. Fischelis, Newark, N. J.	J. H. Webster, Detroit, Mich.
Don Machenheimer, Shawnee, Okla.	E. V. Sheely, Memphis, Tenn.
Henry Coombs, Salt Lake City, Utah	Robert J. Ruth, Phila., Pa.

A leaflet published by Dr. Kilmer and his Advisory Committee contains the following information concerning Pharmacy Week in 1925:

"The underlying motive of a National Pharmacy Week is the education of the public as to the mission and service of pharmacy.

"The value and importance of setting aside one week in the year for such a purpose was outlined at the 1924 meeting of the A. PH. A. by Robert J. Ruth, Chairman of the Section on Practical Pharmacy and Dispensing.

"From this beginning the movement has grown spontaneously, and it is believed that this year a quite general observance will be made throughout the country.

"A large number of state and local associations, colleges, pharmaceutical leaders and workers have endorsed the campaign.

"An Advisory Committee has selected the last week in October as the best period for the year 1925.

"It is hoped that through the action of the National Associations the movement may be molded into concrete form and become a permanent constructive feature in pharmacy.

"A book has been issued carrying suggestions for the observance of Pharmacy Week in the individual store.

"There is now an urgent need for the services of leaders and workers to carry the real message of pharmacy to the public. Pharmacy Week offers an unusual opportunity for pharmacists to bring to the attention of the public the professional side of their work and the fact that they are educated and qualified in matters scientific as well as matters commercial.

"There is a need for writers who will indite and send to magazines and newspapers articles, or a series of articles, in respect to pharmacy, its progress, its status and its aim.

"There is need for speakers who will go before Rotary, Kiwanis, Lions and other clubs, chambers of commerce, boards of trade, women's, neighborhood and social organizations and other like bodies, and talk about the professional side of pharmacy.

"Associations of medical men, nurses and health bodies should be informed of the higher educational standards which are even now being realized for pharmacy.

"Members of the legal profession, legislators, governing bodies and officials should be enlightened as to the true aims and the needs of pharmacy. Such an effort will tend to secure the enactment and enforcement of sane and just laws.

"Colleges and schools, through boards of education and teachers, should be reached and, through them, students directed to pharmacy for a life work.

"The aid of the management of radio stations should be invoked and speakers secured who will broadcast the aims of Pharmacy Week.

"Through these and other ways which will suggest themselves, Pharmacy Week should be made the occasion of centering attention upon professional pharmacy.

"At present this movement is spontaneous, and is lacking in a central body, and there is no time in which to form such a body for this year's observance.

"Therefore every worker in pharmacy, including college authorities, officers, leaders and workers in associations, speakers and writers, is asked to act as a self-appointed committee of one to carry out the foregoing suggestions. The time and the opportunity is at hand.

"Each recipient of this folder is asked to aid in making Pharmacy Week for 1925 a success."

Great care was exercised from the first to guard against any attempt to commercialize Pharmacy Week. Editor Eberle stresses this point in his editorial in the June 1925, issue of the (Jour. A. Ph. A., 14 (1925), 469).

Under Editorial Notes, on page 746 of the August 1925, issue of the Journal (Vol. XIV), Editor Eberle writes under the caption "The Des Moines Meeting, the A. Ph. A. Headquarters and Pharmacy Week," and he quotes an interesting editorial published in the July 1925, issue of *The Practical Druggist*, which comments upon the remarkable potentialities embraced in the Pharmacy Week movement.

From the inception of the Pharmacy Week movement, Edward Swallow, who writes extensively for pharmaceutical publications in the United States, England, South Africa and Australia, enthusiastically sponsored Pharmacy Week and his articles and those which he solicited from the writer carried the movement abroad as far as the Antipodes. In an editorial in the August 1925, issue of the Jour. A. Ph. A., 14 (1925), 748, entitled: "Pharmacy Week Is Becoming an International Movement," the Editor says:

"From various publications in the United States, Canada, Australia and elsewhere, it is evident that the suggestion of having a Pharmacy Week is meeting with general approval, and the communications referred to also indicate that the necessity is realized for adhering strictly to the thought that this should be for acquainting the public with the service of pharmacy."

Pharmacy Week was enthusiastically endorsed at the 1925 conventions of the AMERICAN PHARMACEUTICAL ASSOCIATION, the National Association of Retail Druggists and many of the state pharmaceutical associations. It was subsequently endorsed by all of the national, state and local pharmaceutical associations.

In his President's address (JOUR. A. PH. A., 14 (1925), 804) at the Des Moines meeting of the A. PH. A. in 1925, Charles W. Holton said:

"A proposal has been made this year that, to further emphasize the work of pharmacy and to enlighten the public, a pharmacy week be held in drug stores accompanied with suitable displays in windows and stores, showing crude drugs, operations, old and famous prescriptions, and anything which will bring to public attention the place of pharmacy in the community, more especially its professional aspect. This is a worthy undertaking and should have our cordial support. Our publicity committee would be the proper medium through which we could act, and I recommend that this committee be requested to prepare a special bulletin suitable for the occasion, to be placed in drug store windows this fall during Pharmacy Week, and that if special funds be needed, the necessary amount be granted." A letter written by Edward Swallow, which further urges hearty participation in Pharmacy Week observance, is also published on page 837 of the same issue of the JOURNAL.

There were no monies appropriated for the Advisory Committee to use in carrying on the Pharmacy Week campaign in 1925 and all expenses were paid by those individuals who so generously contributed their time to the cause of Pharmacy.

The officers of the national, state and local associations of pharmacy, the deans and members of the faculties of the pharmacy colleges and the manufacturing, wholesale and retail pharmacists all contributed to the success of the first National Pharmacy Week and let it be said at this time that, without the whole-hearted efforts which the editors of the journals of pharmacy have put forth from the inception of the movement up to the present day, Pharmacy Week would never have attained its present status.

The first National Pharmacy Week passed into history. It was an unqualified success which exceeded the fondest expectations of those who directed the campagin. The following is quoted from the minutes of the regular meeting of the Philadelphia Branch of the A. PH. A., held on the evening of October 13, 1925 (JOUR. A. PH. A., 14 (1925), 1052):

"The president called on Ambrose Hunsberger to give a few words on 'Pharmacy Week.' Mr. Hunsberger likened the week to election night when every one is anxiously waiting for the returns; for, as he said, the country was taking a vote on the status of pharmacy and we were anxiously waiting to see if the professional side of pharmacy was to receive recognition. He was greatly encouraged by all the reports of activities and he spoke particularly about having received letters from far and wide asking for information about Pharmacy Week and that he was impressed by the deep sincerity shown in each case."

On page 1057 of the same issue of the JOURNAL, activities in California and Virginia were commented upon as follows:

"Secretary W. Bruce Philip's Weekly Information Letter, of October 13, aside from further messages on Pharmacy Week, contained a window poster with the following message to the public:

" 'This is Pharmacy Week. All laws of the city, state and nation demand that the Public Health be protected. Only trained professional men who have qualified by experience and examination are allowed by law to sell drugs and Fill Prescriptions. This Drug Store complies with these laws. It is a legal service station to assist you and your physician by Filling Presciptions and selling Pure Drugs.' "

"Secretary A. L. I. Winne, of the Virginia Board of Pharmacy, writes that 'Pharmacy Week' was generally observed by pharmacists in Virginia. Some stores went to a great deal of trouble in putting in displays and made most impressive showings. A great many stores neglected to take advantage of the opportunity afforded by the occasion, but as a beginning the results were very satisfactory, and in future years a more general observance can be expected. The Virginia Pharmaceutical Association gave prizes of ten, five and two and one-half dollars for best dressed windows."

Editor Eberle in an editorial published on page 961 of the issue of the JOURNAL mentioned above, had the following to say concerning the first observance of Pharmacy Week:

> "The results of the first 'Pharmacy Week' as an annual event have been reported in part in the minutes of Local Branches. Consideration should be given to the fact that the 'Pharmacy Week' idea is a new one; there are many other 'weeks' which pharmacists have been called upon to observe, but the important thing is that the public has been interested and physicians, in some localities, have aided in making the educational features a success. Invitations and communications were sent out by some pharmacists, which have added largely to the esteem in which they are held by their fellows—not that they are now of a higher type, but they profited by the opportunities which made their patrons better acquainted with their service as pharmacists.
>
> "The Section on Historical Pharmacy would like to have photographs of pharmaceutical displays, especially those of an educational kind, letters sent to patrons and physicians, and other literature that had as foremost thoughts the service and mission of pharmacy. In years to come search will be made as to the origin of the idea, and for information relative to those who promoted the plan and participated in one way or another in making the first 'Pharmacy Week' a success. Such matter should be addressed to the AMERICAN PHARMACEUTICAL ASSOCIATION.
>
> "It may, perhaps, be said that the displays were not general but, certainly, pharmacists in every section of the country contributed to the success. In some cities a large number interested themselves in the movement and some fine efforts were put forth in the smaller towns; the influences of individual interest, locality, and predominant activities of stores, were evident. It is safe to say that next year 'Pharmacy Week' will have greater significance—those who contributed and participated in 'Pharmacy Week' this year have reason for such hope and are to be congratulated. The introductory paragraphs of the report of the Commonwealth Fund Pharmacy Study are applicable.
>
> " 'Pharmacy is an ancient and honorable profession. Its beginnings are lost in the mists of antiquity and its history is replete with substantial accomplishments. It is the mother of medicine and the original source of many forms of research. Numerous investigators who have made epochal contributions to science and art have been enrolled among the numbers of its followers. To-day pharmaceutical research is scholarly and productive. In the laboratories of two continents scientists are industriously and effectively studying the problems of the field.
>
> " 'Yet at the present time, the profession is undergoing a heavy barrage of criticism. The assertion has been made that it has been commercialized and has sunk to the level of soda-fountain dispensing and the rule-of-thumb shop keeping. Claims are made that it has become a purveyor of illegal drugs and liquors that keeps just within the boundaries between legality and crime. It is usurping the functions of the doctor by counter prescribing. It is said that it is pseudo-scientific without intelligent grasp of the sciences which it pretends to utilize. Some critics say that in the effort to commercialize the occupation, the ancient professional morale has been lost, with the result that the occupation has ceased to be a profession and has now become a trade.
>
> " 'It is, therefore, of interest to examine this vocation which in numbers is not inconsiderable and in history is rich and worthy. To know with some definiteness just what the pharmacist does, what place he fills or may fill in society, how much he needs to know, and what sort of training should be given him in order that he may

properly and intelligently fulfil his functions is a matter of major social importance. The criticisms just enumerated become immaterial if a picture can be drawn showing the full round of the responsibilities of the pharmacist and the amount, the depth, and the extent of the training which is needed adequately to fit him to fulfil his obligations.' "

SECOND OBSERVANCE OF NATIONAL PHARMACY WEEK, OCTOBER 10–16, 1926.

In 1926, endorsed by all American pharmaceutical organizations, the Pharmacy Week movement took on new proportions. The writer formulated a plan for permanent organization which was adopted by both the AMERICAN PHARMACEUTICAL ASSOCIATION and the National Association of Retail Druggists. This was to the effect that a National Executive Committee be formed to consist of ten members; five to be appointed each year by the President of the A. PH. A. and five by the president of the N. A. R. D.; these members to elect the National Chairman; the Advisory Committee, working under the Executive Committee, to be composed of the presidents and secretaries of all of the state pharmaceutical associations. This plan of organization remains in effect at the present time. The first Executive Committee on National Pharmacy Week was composed of the following members:

American Pharmaceutical Association.
Robert J. Ruth, Chairman, Philadelphia, Pa.
Frederick B. Kilmer, New Brunswick, N. J.
William B. Day, Chicago, Ill.
W. Bruce Philip, San Francisco, Cal.
Hal. E. Duncan, Birmingham, Ala.

National Association of Retail Druggists.
C. Fred Wright, Chairman, Boston, Mass.
Samuel C. Davis, Nashville, Tenn.
John C. Culley, Ogden, Utah
P. J. Kolb, Chicago, Ill.
Joseph W. Noble, Philadelphia, Pa.

It is worthy of mention that the two great national associations and all state associations were thus united for the promotion of a cause designed to promote the welfare of the profession of pharmacy. The members of the Executive Committee elected the writer to fill the office of National Chairman.

At the 1926 conventions of the A. PH. A. and the N. A. R. D. resolutions were adopted which permanently set the dates for the annual observance of Pharmacy Week as beginning on the second Sunday in October each year. The A. PH. A. and N. A. R. D. further appropriated $250.00 each to constitute a budget of $500.00 to be used by the National Executive Committee in carrying on the Pharmacy Week campaign. In spite of the fact that an intensive campaign was carried on, only half of the appropriation was used in 1926. The balance of the appropriation served to completely finance the 1927 observance. A new appropriation of $500.00 was granted jointly by the A. PH. A. and the N. A. R. D. in 1928. Again, less than one-half of this money was used by the Executive Committee in 1928 and the balance was sufficient to finance the Pharmacy Week campaign in 1929, so that the first five National Pharmacy Week campaigns were financed with $1000.00 or an average of $200.00 per year, with the result that millions of dollars worth of publicity was secured.

In 1926, the National Wholesale Druggists' Association entered whole-heartedly into the work of furthering the Pharmacy Week movement. Members of the National Wholesale Druggists' Association contributed valuable assistance by attaching 140,000 Pharmacy Week stickers to their invoices. These stickers were procured from Dr. E. L. Newcomb, the Secretary of the Association, who sent out letters to all of the whosesale houses holding membership in the Association, outlining the plan. The stickers called attention to the dates and purpose of Pharmacy Week and asked that each contribute its bit by making a great Pharmacy Week Display. Each jobbing house paid for the stickers it procured from the Association.

The annual reports on Pharmacy Week which the writer has rendered each year to the A. PH. A. tell quite completely of the organization work and the results of each annual observance and as these reports are preserved in the archives of the ASSOCIATION, it is not necessary to repeat them at this time to serve the purpose for which this paper is being written.

THE THIRD ANNUAL OBSERVANCE OF NATIONAL PHARMACY WEEK, OCTOBER 9–15, 1927.

As Samuel C. Davis, of Nashville, Tenn., who was appointed by the President of the N. A. R. D. to serve on the Executive Committee on National Pharmacy Week in 1926, was, at the

1926 convention, elected President of the N. A. R. D., he appointed A. V. Burdine of Washington, D. C., to serve on the Pharmacy Week Executive Committee in 1927. With this one exception the Executive Committee on National Pharmacy Week remained unchanged until 1930. The writer was reëlected National Chairman, which office he still holds at this time.

A paragraph from a release story sent out from the National Pharmacy Week Headquarters prior to Pharmacy Week in 1927 will give some idea of the growth of the National Pharmacy Week movement.

> "If each drug store in the United States will coöperate, we will have sixty thousand Pharmacy Week windows. Last year we had more than half that many—the State of Missouri had 1102 Pharmacy Week windows competing for the Cloughly Cup of the Pharmacy Week Club of Missouri—the year before they had 372, showing an increase of 730 windows in 1926 over 1925. This year they promise 2000 windows. Philadelphia had 700 windows in 1925 and more than a thousand in 1926."

From the "Story of the Third Annual Observance of National Pharmacy Week," released to the journals, the following is quoted:

> "One hundred full-page Pharmacy Week spreads appeared in the metropolitan newspapers of the country that were paid for by wholesale druggists. The matrices were supplied by the N. W. D. A., who also mailed out 14,000 copies of news stories for newspapers, 14,000 copies of radio talks, 20,000 copies of window suggestions, all of which were in turn distributed by the wholesalers. The N. W.-D. A. also sent out 3500 of each of a half-dozen suggested form letters which were reproduced to the numbers of several hundred thousand copies. It can readily be seen that the wholesale druggists of the country deserve the appreciation of American Pharmacy for their magnificent contribution to the greatest movement ever attempted to bring about a fuller realization and deeper appreciation of the pharmacist's services—an educational movement which has caught the attention of the public and caused it to think and talk about its pharmacist with a sympathetic understanding.
>
> "By conservative estimate, it is safe to say that there were between 40,000 and 45,000 Pharmacy Week windows in the drug stores of the United States. More than two hundred full-page spreads and thousands of smaller spreads appeared in the newspapers, and thousands of news stories and editorials were published in the newspapers as well. Hundreds of Pharmacy Week talks were broadcast from radio stations. Thousands of talks were made before the service clubs. Pharmacy Week cards appeared in the surface, elevated and subway cars in some of the cities. There were many other methods of publicity, some of which will be mentioned later in this report, which will be arranged by states in their alphabetical order."

THE FOURTH ANNUAL OBSERVANCE OF NATIONAL PHARMACY WEEK, OCTOBER 14–20, 1928.

In 1928, the Committee on Education and Research of the National Wholesale Druggists' Association, the Federal Wholesale Druggists' Association, the Drug Trade Bureau of Public Information, the deans of the colleges of pharmacy, the editors of the journals of pharmacy and the members of the State Boards of Pharmacy were added as coöperating groups to the official Pharmacy Week Committee.

The Committee on Education and Research of the National Wholesale Druggists' Association enlarged upon its helpful program of former years, and, working in close harmony with the Pharmacy Week Executive Committee, supplied attractive window display material lithographed in six colors. Dr. E. L. Newcomb, Secretary of the N. W. D. A., reported that 21,270 sets of window display material were ordered by wholesale drug houses which supplied them upon request to retail druggists, and that there were many requests for more sets after the supply was exhausted.

THE FIFTH ANNUAL OBSERVANCE OF PHARMACY WEEK, OCTOBER 13–19, 1929.

Far outstripping all previous efforts, the pharmacists of America launched a publicity program for Pharmacy during the week of October 13th–19th, so astounding in its scope that it

has been referred to as the "Multi-Million Dollar Pharmacy Week Program." Every available publicity medium was used to consummate the success of the fifth annual observance of Pharmacy Week and the results have surely compensated all who contributed to the movement.

The Drug Map of the World which was prepared by Dr. E. L. Newcomb, Secretary of the Committee on Education and Research of the National Wholesale Druggists' Association and furnished to retail druggists by wholesalers, proved to be the most popular of any Pharmacy Week display material ever distributed. Many thousands of Pharmacy Week windows throughout the United States and Canada marked the event. It is safe to say that there were more window displays during the recent Pharmacy Week than in any previous year. Scores of requests for Drug Maps for permanent display have been received from schools, colleges and libraries in all sections of the country.

Pharmacy has never known radio publicity to compare to that which featured Pharmacy Week, October 13th–19th. Eleven of the most popular programs on the air, broadcast over the Red and Blue Coast-to-Coast Networks of the National Broadcasting Company, included Pharmacy Week messages. These programs were made popular by such nationally known radio stars and acts as Graham McNamee; Amos 'n' Andy; The Pro-phy-lac-tic Artists; Musical Melodramas; Clicquot Club Eskimos; Paul Oliver, Olive Palmer and The Revelers; The Ipana Troubadours; The Serenaders; Real Folks; etc. It is estimated that the message of Pharmacy was carried over the ether to more than fifty million people.

In addition to the radio program over the Red and Blue Networks, scores of Pharmacy Week messages were broadcast over local stations by men prominent in Pharmacy. We mention a few to show the wide-spread popularity of the Pharmacy Week movement: Prof. Gordon A. Bergy, Station WMMN, Morgantown, W. Va.; Dr. Robert P. Fischelis, Dr. E. L. Newcomb, Dr. Ernest Little and Dr. H. V. Arny, Station WOR, Newark, N. J.; Maine Pharmaceutical Association, Station WCDH at Portland and also the Bangor Station; A. E. Breslin, Station WWL, New Orleans, La.; Chas. T. Hull, Station WDRC, New Haven, Conn.; Ralph Muma, Station KWCR, Cedar Rapids, Iowa; etc. There were dozens more, but space does not permit a complete list.

Mr. Jerry McQuade also performed a valuable service to Phamacy in securing the cooperation of Barron Collier, Inc., which organization placed Pharmacy Week cards in 5000 surface, elevated and subway cars in the Metropolitan District of New York for the entire month of October. The cards were prepared and contributed by the Topics Publishing Co.

The journals of pharmacy contributed editorial and news space most generously and their support was largely responsible for the success of Pharmacy Week, as it stimulated an interest in the movement never before manifested. *American Druggist, Drug Topics* and *Druggists Circular* printed special Pharmacy Week issues, which were highly commendable. The special Pharmacy Week issue of the *American Druggist* was sent to a selected list of 10,000 physicians, as well as to all hospitals and medical societies, in addition to its regular subscribers.

The Hearst newspapers published, without charge, the full-page editorial, "Who Is This Man?" in their 28 metropolitan newspapers which have a national coverage. They also furnished mats of the editorial to individual retail druggists and retail druggists' associations and it appeared in hundreds of newspapers in all sections of the United States. The editorial, itself, was proclaimed by many to be the most striking editorial pertaining to the pharmacist ever written.

Hundreds of thousands of inches of valuable newspaper space—mostly contributed by the press of the nation—constituted a priceless tribute to pharmacy. Never before has the lay press given such editorial and news space to pharmacy.

Many hundreds of Pharmacy Week talks were delivered before the members of service clubs and other audiences during the week. This powerful means of informing the public concerning the service of Pharmacy reached new heights with a coverage which was indeed national. Local retail druggists' associations were active as never before in planning and executing successful Pharmacy Week campaigns. Special mention must be given to the Camden County (N. J.) Druggists' Association, Cedar Rapids (Iowa) Retail Druggists' Association, Cambria-Somerset (Penna.) Retail Druggists' Association, Columbus (Ohio) Retail Druggists' Association, Corvallis (Oregon) Retail Druggists' Association, San Francisco Retail Druggists' Association, Alameda County (Calif.) Retail Druggists' Association, Southern California Retail Druggists' Association, Chicago Retail Druggists' Association and Philadelphia Association of Retail Druggists.

Prior to Pharmacy Week, the writer addressed the Camden County Druggists' Association and during Pharmacy Week he spent four days at Johnstown, Pa., where he filled eleven speaking engagements arranged for by the Cambria-Somerset Retail Druggists' Association as part of its Pharmacy Week program. The Johnstown newspapers devoted 500 inches to Pharmacy Week more than half of which was news and editorial copy. Every drug store in Cambria and Somerset counties had Pharmacy Week windows.

A Pharmacy Week convention was held in Columbus, Ohio, at the Neil House, on October 16th. This unique feature of Pharmacy Week observance was climaxed by a testimonial dinner given in the ballroom of the hotel to Professor C. A. Dye, Dean of the college of Pharmacy, Ohio State University, in recognition of his valuable services to Pharmacy and on the completion of the new Pharmacy Building at Ohio State University. An attractive educational Pharmacy Week display was installed in the lobby of the new Neil House, which is one of Columbus' leading hotels. The entire affair, which received considerable press notice, was sponsored by the Columbus Retail Druggists' Association, the Ohio State Pharmaceutical Association and the Alumni Association of the College of Pharmacy, Ohio State University.

The Cedar Rapids Retail Druggists' Association put over a splendid Pharmacy Week observance which included radio broadcasting and several new and unique features and was accompanied by 467 inches of newspaper publicity.

That the Pharmacy Week movement and the principles upon which it is based meet with the approval of the members of the medical profession, is evidenced by a splendid editorial which appeared in the October issue of "*Clinical Medicine & Surgery.*"

Pharmacy Week reached a hundred million people in the United States and created a public appreciation of professional pharmacy and drug store service never before attained.

FOREIGN COUNTRIES.

Pharmacy Week was endorsed in 1926 by the pharmaceutical societies in Canada, Australia, New Zealand and Tasmania. The Canadian Pharmaceutical Association has carried on an annual Pharmacy Week observance each year which has linked up with the movement in the United States and resulted in a coverage of the North American continent. Australia, New Zealand and Tasmania have been no less active in rendering the English-speaking populace of the Antipodes "pharmacy-conscious." In 1929, both England and South Africa consummated Pharmacy Week observances which were not less impressive than the campaign carried on in America. The details are contained in the writer's annual report before the House of Delegates.

THE SIXTH ANNUAL OBSERVANCE OF NATIONAL PHARMACY WEEK, OCTOBER 12–18, 1930.

The most elaborate plans are being made for the sixth annual observance of Pharmacy Week. The movement, which has spread to every English-speaking country in the world, has been sponsored by the pharmacists in several of the Spanish-speaking countries and they are planning to join in the movement which has done such a great deal to bring about a better public appreciation of pharmaceutical service.

Several changes have been made in the Executive Committee on Pharmacy Week, the President of the N. A. R. D. having appointed Jos. W. Noble of Philadelphia, a member of the original committee, to succeed C. Fred Wright, of Boston, Mass., as Chairman of the N. A. R. D. Committee on Pharmacy Week; H. Peterson, Minneapolis, Minn., has been appointed to fill the vacancy and H. P. Larsen, Chicago, Illinois, and F. A. Mortenson, Los Angeles, Calif., have been appointed to succeed John C. Culley, San Francisco, California, and P. J. Kolb, Chicago, Illinois.

The A. PH. A. Committee on Pharmacy Week which, with the N. A. R. D. Committee on Pharmacy Week, comprise the National Executive Committee, remains unchanged and the writer has again been chosen to serve as National Chairman.

In spite of the fact that Pharmacy has come in for some unwelcome publicity during the past decade as a result of the Federal Prohibition Act which opened a lucrative avenue for many outside of the profession to engage in the drug business and thereby prostitute the good name of the profession because adequate legislation does not exist to prevent such flagrantly atrocious encroachments; in spite of the multiplicity of new commercial side lines, such as the luncheonette, which have been introduced quite generally in the drug stores of the nation as an economic necessity but which detract from the professional aspect of the drug store; Pharmacy Week publicity

has been the medium which has served to offset distasteful publicity. Combined with the publicity disseminated by the Drug Trade Bureau of Public Information, Pharmacy Week publicity has brought about a deep public appreciation of the services which the pharmacist renders along with the physician and dentist in conserving the public health.

This assertion is substantiated by the following editorial (*American Journal of Pharmacy*, 102 (1930), 130) which appeared in the Newark (N. J.) *Sunday Call:*

> "There is rightly the highest esteem and trust for the ancient and honorable calling of the apothecaries. Thus, when the modern brethren of these faithful servants of the public, the pharmacists, have the question put to them by some of their own guild, whether they are not going after strange gods in these days of business expansion, we listen with interest and respect. We appreciate the jealously expressed regarding conserving the honorable traditions of the centuries, but confess at the same time inability to discern the dangers some learned pharmacists proclaim.
>
> "The drug-store—that is purely an American name which custom prevents us discarding—is an institution of this country, developed by ourselves, essentially democratic, and, aside from any business considerations, contributing importantly to public health and general welfare. The druggist is one of the few persons in the body civic that everyone believes and trusts. Around this faith has grown the atmosphere of a community personality which even the chain pharmacy has been unable to destroy. In neighborhoods away from commercial centers, the drug-store not only has maintained but has extended its eminence as a personal and private possession of each of its customers. Safeguarded by laws and regulations of their own advocacy, druggists occupy a position of minor priesthood and the faith is not misplaced.
>
> "The introduction of such things as soda water, candies, restaurant service, books, cutlery, photographic supplies, tobacco, stationery, and things similarly far removed from medicine, is not alone the result of economic pressure. True it is that pharmacies would rapidly disappear if dependent upon prescription income alone and that many such important branches of the business are practically service at a loss, but it is also true that the institutional developments are the product of demands by the American people. When a drug-store does something that the public does not like, it will hear from it quick enough. That is because every one tells his troubles to a druggist, who knows and keeps enough secrets to wreck a community's peace.
>
> "A few years ago a movie was produced in which a great star failed simply because the scenario told of a druggist who sold bad securities to his customers. Not even the fact that he made full and honorable restitution saved the piece. The public didn't like it because it attacked one of its cherished faiths. We do not see any abatement in this popular confidence, though we honor those of the New Jersey profession who have voiced fears lest this regard be lessened."

THE NATIONAL FORMULARY AND U. S. PHARMACOPŒIA.

Throughout all of this changing condition there has been no lack of fine coöperation and efforts in the preparation of the standards. With each revision the Pharmacopœia and the National Formulary have shown progress and maintained the high type of direction which has marked all revisions of the two standards. It is, therefore, pleasing that this exhibit attracted a very large number of visiting physicians, fully equal to that of other divisions of the exhibits, at the meeting of the American Medical Association. It proves that physicians are willing and desirous of coöperating with pharmacists to improve medical and pharmaceutical service.

NORTH CAROLINA CHANGES THE NAME OF THE PHARMACY BUILDING.

During Commencement Week the Board of Trustees of the University of North Carolina voted to change the name of the Pharmacy Building to "Howell Hall" as a memorial to the late Dean E. V. Howell. He organized the school and served as its dean for thirty-four years. A new plate designating the name of the building is to be placed over the entrance door.

COMMITTEE REPORTS

MEETING OF THE COMMITTEE OF REVISION OF NATIONAL FORMULARY.

ADLEY B. NICHOLS, SECRETARY.

The Committee on National Formulary of the AMERICAN PHARMACEUTICAL ASSOCIATION held its annual meeting at Pocono Manor Inn, Pennsylvania, on Monday and Tuesday, June 29 and 30, 1931. The entire Committee was present including the following:

E. N. Gathercoal, *Chairman*, Chicago, Ill.
Louis Saalbach, *Vice-Chairman*, Pittsburgh, Pa.
Adley B. Nichols, *Secretary*, Philadelphia, Pa.
Henry V. Arny, New York, N. Y.
Gustav Bachman, Minneapolis, Minn.
I. A. Becker, Chicago, Ill.
Bernard Fantus, Chicago, Ill.
Oliver Atkins Farwell, Detroit, Mich.
Samuel L. Hilton, Washington, D. C.
Glenn L. Jenkins, Baltimore, Md.
H. A. Langenhan, Seattle, Wash.
E. L. Newcomb, New York, N. Y.
Paul S. Pittenger, Philadelphia, Pa.
Wilbur L. Scoville, Detroit, Mich.
Leonard A. Seltzer, Detroit, Mich.

Associate member, Chairman E. Fullerton Cook, of the Revision Committee of the United States Pharmacopœia, Secretary E. F. Kelly, A. PH. A., and Chairman John C. Krantz, Jr., of the Unofficial Standards Committee of the AMERICAN PHARMACEUTICAL ASSOCIATION, were also present.

The results of the meeting were very encouraging, as many important subjects were considered and disposed of which otherwise would have taken many months by the ordinary correspondence method.

Opportunity was given for the nine Sub-Committees to hold one or two meetings each, at which time work which they had carried on during the year was considered and passed upon.

One of the important accomplishments of the meeting was the further consideration of admissions of N. F. V items to N. F. VI. As a result, a total of 60 additional items were approved for admission and 250 items were tentatively not approved. This action was based upon actual facts showing the use of these preparations as determined by questionnaires which had been sent to prescription stores, drug stores and hospital pharmacies throughout the country. Items admitted were found to be used in at least 20 per cent of the stores and hospitals in the United States. It is felt that this action will increase the value of the National Formulary very definitely, as many items which were of little use were not accepted at this time. The detail of items admitted up to the present time will be submitted to the press of the country at a later date and it is hoped that pharmacists and those interested in revision work will comment freely upon any actions taken by the Committee.

A total of several hundred new items which had been suggested as possible additions to the National Formulary were informally considered and were referred to the various Sub-Committees for more detailed information as to use and value.

Annual reports from Sub-Committee Chairmen were read and of particular interest was the report of the Committee on Nomenclature as presented by Dr. H. V. Arny. Dr. J. J. Durrett, Chief of the Food and Drug Administration, gave a most interesting address in connection with Dr. Arny's report, and extracts of this address and Dr. Arny's report will be published in the near future, as they bear upon principles which will be of interest to pharmacists throughout the country.

Another important action of the Committee was the change made in General Principle No. 1 covering Scope, by which simples will be admitted to the National Formulary providing use justifies their admission.

Many other items were considered, the detail of which it is impossible to present at the present time.

A PHARMACY ON VIEW AT THE CONVENTION OF THE A. M. A.

A professional pharmacy, whose drawing power was evidenced by groups of physicians and other visitors critically inspecting it, was set up by Merck & Co. in coöperation with the Phila-

delphia College of Pharmacy and Science. The purpose of the exhibit was to give physicians an intimate glimpse of what a pharmacy, or at least its prescription department may be when the pharmacist and the physician of the community coöperate. It was not set up on idealistic lines but represented a trend in professional pharmacy which is coming more and more into evidence. Among the features of this pharmacy a private switch board and telephone service was demonstrated. It included a prescription desk allowing for four pharmacists at work, a line of galeni-

A Pharmacy in the A. M. A. Exhibit.—Courtesy Merck & Co.

cals, biologicals and methods for taking care of the stock. The apparatus in the pharmacy was shown from different sources and also a library for the service of those engaged and for physicians. The pharmacy was in charge of Prof. Anton Hogstad, Jr.

Pharmacy has had to contend with and adapt itself to radical changing conditions as had many other professions and businesses. The average drug store has been caricatured in the newspapers and magazines, overdrawn as caricatures always are. The ills which afflict pharmacy and its practitioners are freely acknowledged by pharmacists and they have for quite a time studied means and ways whereby these conditions could be bettered. It is not overstating when it is said that pharmacy is making progress as is shown by examples of professional stores, by the curriculums of colleges, and by the direction and guidance of the Boards of Pharmacy.

NEW JERSEY REGISTRANTS RECEIVE CERTIFICATES FROM GOVERNOR LARSON.

Governor Morgan F. Larson presented certificates to the registered pharmacists of New Jersey, and admonished them to be true to the obligations assumed. The formalities added dignity to the award. Remarks were also made by C. Graham McClosky, president of the New Jersey Board, President Wm. A. Chamberlain, of the State Association, and Secretary Robert P. Fischelis delivered an address. The Code of Ethics, before being signed, was read by Chapters, Albert J. Smith, W. Scott Taylor and James A. Bauman participating. Brief remarks were made by other officials and several members of the registrants. The following is quoted from the address of Secretary Robert P. Fischelis.

"When an individual becomes a member of a profession like ours, he ceases to be an individual as far as his public acts are concerned. He becomes a member of a class which is judged by the experience of the public with that class. Just as a chain is said to be no stronger than its weakest link, so a profession can rise no higher than the individuals who compose it. To you who are receiving your certificates of registration today, I would say that you are entering upon your professional career at a time when there is considerable scoffing at the profession of pharmacy

on the part of those who are unfamiliar with its responsibilities. Do not let the scoffer disturb you, for he is, after all, not a constructive member of society. See to it, however, that the earnest and constructive members of society, whose views go far in the molding of public opinion, obtain a true picture of your professional activities. The method which you will pursue in attaining this end will determine to a large extent your own personal standing, as well as the standing of your profession in your community."

OFFICERS, MEMBERS AND GUESTS OF THE AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY.

The American Druggists' Fire Insurance Co. celebrated its silver anniversary at its headquarters during the week of May 25th. In attendance were officials of various national and state drug and pharmaceutical organizations and also the officers and representatives of the Company.

The festivities opened on Monday evening at the Cincinnati Club. One of the events of the occasion was an all-day trip on the Ohio River to visit the tomb of General Wm. Henry Harrison at North Bend, and the birthplace of General Grant at Point Pleasant.

On Thursday of the week a luncheon was tendered to guests of honor and this was followed by a sightseeing trip around Cincinnati. The festivities were concluded by an elaborate banquet, at which time Secretary Frank H. Freericks was extended a vacation and the means for carrying it out. A painting of the Secretary was presented for the offices.

TABLET UNVEILED IN MEMORY OF DR. WILLIAM BROWN.

Ceremonies were held in front of the home of the late General William Brown, M.D., author of the First American Military Pharmacopœia, on June 14th. Descendants of Dr. Brown were present at the unveiling. Among them were Mrs. Bessie Wilmarth Gahn, who contributed an article to the JOURNAL on Dr. Brown. Her father was for a number of years in the Government service and a member of the A. PH. A.

The information given on the tablet is as follows: "Residence of General William Brown, M.D., born 1748, died 1792. Physician-General and Director of Hospitals, Middle Department, Continental Army, Charter Member of the Society of Cincinnati, Father of First American Pharmacopœia, President of the Board of Trustees of Alexandria Academy at General Washington's Headquarters, Personal Physician for many years and intimate friend of General George Washington who visited in this house. Tablet erected in 1931 by his descendants. The inscription by the War Department. Ceremonies conducted by the Washington Society, June 14, 1931."

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

Article III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

DETROIT.

The May meeting of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in Ann Arbor, May 12, 1931. Immediately after dinner the assembly, joined by the students of the University of Michigan, College of City of Detroit and the Detroit Institute of Technology, adjourned to the Pharmacy and Chemistry Building of the University of Michigan.

President John E. Webster called the meeting to order. The minutes of the previous meeting were read and approved. President Webster then introduced the speaker of the evening, Dr. Nathan Sinai, associate professor of Hygiene and Public Health in the U. of M. Dr. Sinai has given a great deal of study to the cost of medical care, under the auspices of the Federal Committee.

The speaker presented many interesting figures revealed by investigations in the various surveys. He said "the cost of hospital care is not high—the people just haven't the money;" to emphasize this point he quoted the following figures on the income of the people in the U. S.: 22% receive under $800.00 per year; 38% under $1000.00 per year; 54% under $1200.00; 67% under $1400.00; 76% under $1600.00; 82% under $1800.00. From these figures it can readily be seen that comparatively few can afford the hospital costs, unless absolutely necessary. Those who can afford go there frequently for examination and "preventative" medical care; 1,500,000 people are engaged in medical care in the United States and $3,000,000,000 are invested in hospitals. There is to-day a dissatisfaction in the cost of that service, and it is hoped that the Committee can overcome this dissatisfaction.

Each year $36.40 per person is spent for medical care: $8.79 for hospital and dispensary; $8.68 for physicians; $6.75 for pharmacy; $5.76 for dental care; $1.82 for nurse; $4.60 for miscellaneous. Another set of interesting figures was obtained by the survey of a city with 100,000 population. The Committee found there were 57 drug stores, or one store to 2000 population; 12,800 prescriptions were compounded, and $1,400,000 expended: 44% for medical care; 21% for prescriptions; 57% for patent and home remedies; 22% miscellaneous. The survey showed an immense waste and duplication as there were 99 pharmacists, while 7 pharmacists in three stores filled 6300 prescriptions; 53 pharmacists averaged less than two per day and ten averaged under 5.5 per week.

Multiplicity of brands was carefully studied. It was found that two methods were used to exploit the many new preparations coming into the field to-day; namely, direct appeal to the public and, advertising appeal to the professional group. The committee, much to the surprise and relief of the average pharmacist, found few dispensing physicians and where dispensing was done, no charge was made for this service by the physician. Dr. Sinai closed his talk by assuring the members of the Detroit Branch that the investigations would be continued.

A general discussion followed, participated in by Messrs. Seltzer, Scoville and Lakey. Dr. Sinai was given a rising vote of thanks.

Leonard A. Seltzer offered a resolution, supported by Dean Lakey, recommending that the U. S. P. Revision Committee adopt Professor Crandall's plan in the revision of the new U. S. P. The resolution follows:

WHEREAS—Certain recommendations relative to metrological nomenclature as recently placed before the Committee of Revision of the United States Pharmacopœial Convention have come to the attention of the Detroit Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, and

WHEREAS—The members of the Detroit Branch are convinced of the desirability of adopting these recommendations for general use in the Pharmacopœia, and

WHEREAS—The British Pharmacopœia now uses the name milliliter for one-thousandth of a liter, and proposes to continue its use in the forthcoming revised edition, and harmony in units and nomenclature between these two authorities of English-speaking countries is desirable, therefore,

Be It Resolved—That the Detroit Branch, by a vote of its members, earnestly endorses these proposals to the Committee of Revision and respectfully urges that, in accordance therewith, the one-thousandth part of a liter be readopted as the principal capacity unit in the current Revision, that the name "milliliter" and the abbreviation "ml" be adopted for it; and that the secretary be directed to mail a copy of this resolution to the chairman of the Committee of Revision of the United States Pharmacopœia.

Discussion followed in which Professor Stocking of the U. of M. questioned the advisability of a change at this time, inasmuch as the old system was restored in the last revision.

Dr. Scoville clarified the discrepancies of the 9th Revision and defended Professor Crandall's suggestions, saying it was better in every way and he would support it. Dean Kraus said the change was unpopular. Dean Lakey said the change, while unpopular, was scientifically correct. Dr. Blicke remarked the trend has always been for chemistry and pharmacy to use the same terms and, as chemistry has not adopted the suggested change, he believed pharmacy would make a mistake in not using the same terms that chemistry uses and recognizes. The motion was carried unanimously, and the secretary was instructed to mail a copy of the resolution to each member of the U. S. P. Revision Committee.

Before calling on the chairman of the Committee on Nominations, for a report, President Webster thanked the officers of the Branch for the splendid coöperation given him, and recommended to the students that they link up with the AMERICAN PHARMACEUTICAL ASSOCIATION.

Chairman Leonard A. Seltzer, of the Committee on Nominations, said the students had demonstrated to the Detroit Branch the wisdom of placing the responsibility of pharmacy on their shoulders and that the experiment was a success and, therefore, desired to continue to encourage the students in pharmacy in their undertaking. The Committee presented the following nominations: *President*, James Liddell; *First Vice-President*, Fred Besancon; *Second Vice-President*, John Vis; *Treasurer*, F. F. Ingram, Jr.; *Secretary*, Bernard A. Bialk; *Chairman of Program Committee*, Dean R. T. Lakey. *Council of Students:* University of Michigan, George T. Griggs and Carleton J. Young; Detroit Institute of Technology, Delbert Dabney and Robert Rudd; College of City of Detroit, Eugenia Lemke and Howard Baker; *Council of Clerks*, Paul Hildebrandt and George McCoy.

The report was adopted and the nominees were elected. In the absence of President-Elect James Liddell, First Vice-President Fred Besancon took the chair. John Wisel offered a motion that suitable resolution be drawn and instructed the secretary to send a copy to the members of the M. S. P. A. Legislative Committee asking them to put every effort behind the passage of the proposed Pharmacy Bill, No. 148. Mr. Weisel also expressed a keen disappointment in the failure of the Committee to act favorably on the Michigan Plan to which Dr. Seltzer and others contributed so generously of their time and energy; the motion was seconded by Dean Lakey and carried.

Dean Lakey moved a rising vote of thanks to Dean Kraus and the faculty of the U. of M. who made this most successful meeting possible.—Carried.

BERNARD A. BIALK, *Secretary.*

BALTIMORE.

The last meeting of this season of the Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the Emerson Hotel on Tuesday, May 26, 1931.

William R. Pohler—Assistant Supervisor of Permits, Bureau of Industrial Alcohol, Treasury Department—addressed the Branch on "Recent Revisions of Regulations Affecting Pharmacists." Mr. Pohler discoursed at length upon his subject, emphasizing many important changes, demonstrating the pragmatic nature of these changes, and pointing out how they tended to further a more sympathetic understanding between officers of his division and the permittees.

Dr. R. L. Swain, Deputy State Food and Drug Commissioner, spoke on "The Recent Amendments to the Pharmacy Law." He discussed the legality of prescription compounding by physicians and dentists, the status of the registered assistant pharmacist under the new law, and certain regulations applying to applicants for registration. He also stated that Section 229 of the revised law contains what is considered from the legal point of view the best and most carefully worded definition of a "Pharmacy" that has yet been offered in a State code.

WM. F. REINDOLLAR, *Secretary-Treasurer.*

THE STATE COLLEGE OF WASHINGTON, PULLMAN, WASHINGTON, SCHOOL OF PHARMACY—STUDENT BRANCH.

The last regular meeting of the student Branch, A. PH. A. of the School of Pharmacy State College of Washington, was held in the form of a banquet, at the Washington Hotel. Not only were the members of the group present, but many guests were in attendance. Invitations had been sent out to all of the druggists in the region of Pullman to attend the closing banquet of the year, and also to see a talking moving picture and demonstration of a miniature fountain.

The druggists in town, and their wives, were present at the affair, and also many out of town guests. Dean P. H. Dirstine acted as toastmaster at the banquet. President E. O. Holland gave a very pleasing welcome to the group, while Professor Whitlow of the School of Business Administration spoke to the group on "Retail Advertising." Fifty-two persons attended the banquet. Music was furnished throughout the evening by an orchestra.

Mr. Hugh Vincent, a member of our local branch, will represent the State College Student Branch in person at the A. PH. A. meeting in Miami.

BELLE WENZ, *Secretary.*

DRUG TRADE BUREAU OF PUBLIC INFORMATION.

Editor Robert P. Fischelis has issued a number of bulletins of the Drug Trade Bureau of Public Information. All of them have interesting information and should be studied by pharmacists and brought to the attention of the local press, and publicity given by the various avenues open to retail pharmacists.

One of the bulletins summarizes the work of the State associations and the activities of these bodies and gives publicity to the coming meetings of the AMERICAN PHARMACEUTICAL ASSOCIATION and the Association of Retail Druggists. State associations should aid in this important service by liberal donations.

A few paragraphs are quoted from recent bulletins:

"In the matter of professional activities, there is a distinct trend among pharmacists to pay greater attention to the prescription and drug business. Many speakers at State Conventions are emphasizing the importance of what is sometimes characterized as a 'return to Pharmacy.' Actually, there has probably been no breaking away from Pharmacy on the part of the druggists, although outward indications may seem to give that impression. What has actually happened is that so much general merchandising has been added to the greater number of drug stores, that the practice of Pharmacy has been overshadowed, although it has by no means been neglected."

"Pharmacy is not receiving its just share of the fortunes made in the drug and medicine business, declared Dean Rudd of the Department of Pharmacy of the Medical College of Virginia, in a recent statement to the National Drug Trade Conference. It was his contention that pharmaceutical education and pharmaceutical research are both in need of substantial financial support, if Pharmacy is to keep pace with the other professions. Such support has not been forthcoming from Big Business in Pharmacy to the extent justified by the contributions of educators and research workers to the drug business."

Dr. Hermann Thoms, Berlin, Germany, one of the *honorary members* of the AMERICAN PHARMACEUTICAL ASSOCIATION has been awarded the Hanbury Medal for 1931.

CONFERENCE OF THE U. S. P. COMMITTEE OF REVISION.*

"A feature of the method of revision, followed for several decades, but more fully developed during the revision of the U. S. P. X, has been the calling together into personal conference of the members of the Committee of Revision. During the last decade two such conferences were held, one near the close of the first year of revision, and the second when the manuscript was practically ready for the printer.

"In addition to these meetings of the entire Committee, there has always been numerous Sub-Committee conferences and several Executive Committee meetings.

"The meeting held at the Pocono Manor Inn, Pocono Summit, Pa., on July 25th to 27th, was attended by forty-six members. Two were absent in Europe and several others who had planned to be present at the last minute found it impossible to attend.

"A part of the program consisted of Sub-Committee conferences and that all might meet within the limited time available, two Sub-Committees arranged conferences in Philadelphia on the day prior to the Pocono meeting. These Sub-Committees were those dealing with Bio-assays and with Volatile Oils.

"The feature of these two Philadelphia conferences was an invitation to manufacturers and dealers and Government officials for the purpose of receiving from them suggestions and criticisms. About thirty-five attended the Bio-assay conference, including four representatives of the United States Food and Drug Administration Laboratories. About eleven dealers and officials attended the Volatile Oil Conference.

"Two general sessions of the entire Revision Committee were held at Pocono Manor Inn when subjects of general interest were presented and discussed.

"At the second session reports were received from the Sub-Committee chairmen.

"At the close of the last session, Dr. J. J. Durrett, Chief of Drug Control, of the Food and Drug Administration, addressed the Committee on the subject of the 'Relation of the Pharmacopœia to the Administration of the Food and Drugs Act.'

"This first conference of the Committee provides as one of its greatest benefits the opportunity for the members to become thoroughly acquainted and for that purpose alone it is of great benefit to the revision.

"The settling of a number of general questions, at least tentatively, is of great importance at this stage of the revision and is expedited by the opportunity to debate questions and reach immediate decisions.

"Finally, the holding of such conferences stimulates the entire work of revision through the concentration of thought of the entire membership upon the many problems which have developed throughout the year. The Sub-Committee conferences have also made it possible to reach conclusions on many questions and to assign subjects for investigation. In all of these respects the recent conference was a signal success.

"It is impossible to announce conclusions at this time as this conference, like other revision work at this stage, is tentative in its results and is subject to further changes or revision. It is possible, however, to report notable progress in the work of revision in every Sub-Committee."

* Courtesy of Chairman E. Fullerton Cook.

TRANSPORTATION TO MIAMI.

Arrangements have been made for a special service to the A. PH. A. meeting in Miami for use of members and their dependants leaving July 25th on the following schedule via Pennsylvania R. R., Richmond, Fredericksburg and Potomac and Seaboard Airline Railway. On July 24th, leaving Pittsburgh 10:40 P.M. Leaving July 25th from New York 9:10 A.M.; Philadelphia 11:08 A.M.; Baltimore 1:05 P.M.; Washington 2:20 P.M.; Richmond 5:18 P.M., arriving at Miami at 4:30 P.M., July 26th.

The Committee in charge are the following: A. C. Taylor, Washington; H. H. Schaefer, N. Y. City; R. L. Swain, Baltimore; James C. Munch, Philadelphia; F. D. Haymaker, Clarksburg, W. Va.; A. L. I. Winne, Richmond; Henry S. Johnson, New Haven; George Rhodes, Newark, Del.; S. Wilson, Pittsburgh.

EDITORIAL NOTES

Editor: E. G. Eberle, 10 West Chase Street, Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, H. A. B. DUNNING, H. C. CHRISTENSEN, C. E. CASPARI, J. H. BEAL, W. BRUCE PHILIP, T. J. BRADLEY. *Ex-Officio Members:* H. C. CHRISTENSEN, *President;* WALTER D. ADAMS, D. B. R. JOHNSON, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* C. B. JORDAN, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; E. N. GATHERCOAL, *Chairman,* N. F. Revision Committee; Chairmen of the Sections, A. PH. A.: E. E. SWANSON, B. V. CHRISTENSEN, RALPH E. TERRY, JOS. G. NOH, J. T. LLOYD; J. W. STURMER, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; W. M. HANKINS, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P.

AN UNFORTUNATE LOSS.

On June 17th fire destroyed a valuable scientific film, "The Movements of Plants," on which two professors of the Brno University, Brno, Moravia, worked for five years, and which if completed would have proved, it is said, a world sensation.

Professor Dr. Ulehla and his two assistants, Dr. Calabek and O. Schuetz were about to adjust new parts of the film, when the fire began. Dr. Calabek threw the burning film into a tin box standing before the door of the laboratory. Not only the precious plant film but also other scientific films and scientific apparatus worth 500,000 crowns were destroyed.

SANITATION OF AUTOMOBILE TOURISTS' CAMPS.

For safeguarding the health of automobile tourists, pharmacists have an opportunity of interesting them in the protection of the members of their families from infections which may result from indifference. Within the last few years much careful thought and diligent effort has been given by health authorities to make living conditions for campers as nearly suitable for them as possible, and in these efforts the pharmacist can have a large part and render a valuable service. Aside from furnishing medicinal supplies, disinfectants, etc., pharmacists can give information of value to the tourists.

ANGLO-AMERICAN HISTORIANS MEET.

On July 13th the third quinquennial conference of Anglo-American historians opened at University College in London. Delegates numbering 500 attended, representing universities, colleges and societies in the United Kingdom, the Dominions and the United States. Important papers were read and visits and excursions were arranged to places of interest in London, Canterbury, Northampton, Hampton Court and Kingston.

NATIONAL DRUG STORE SURVEY.

Good reports were made at various state association meetings of the National Drug Store Survey now in progress in St. Louis, and many interesting facts have been revealed. The drug stocks are being carefully studied as well as the arrangement of merchandise and fixtures, including the show windows, with a view of benefiting the druggists throughout the country. A detailed analysis of prescriptions filled by drug stores covered under the survey is soon to be undertaken with a transcript of prescription records in each store being made and analyzed, to determine the cost of materials entering into the prescriptions and the trend in prescribing with regard to the various constituents.

U. S. RETAIL BUSINESS EXCEEDS FIFTY BILLION ANNUALLY.

A census of distribution figures show that annual sales to retail stores in the U. S., of all kinds, amount to approximately fifty billion dollars while total retail sales exceed fifty billion dollars, the three billion being accounted for by direct sales of manufacturers and other producers.

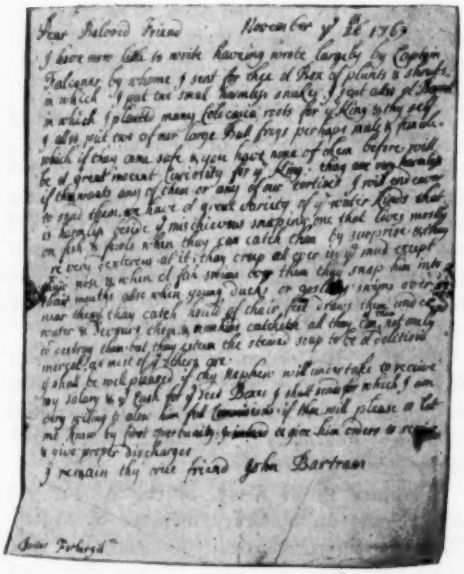
The census figures show that there are 1,549,000 retail stores in the United States and that the average store does an annual business of $32,297.00. The average per capita pur-

chase at retail amounts to $407.52. The figures show that the average number of stores per thousand inhabitants in the several states varies from a minimum of 8.1 in Alabama to a maximum of 15 or more for California or other states. The average sales per store range from $19,827.00 in South Carolina to $39,715.00 in Michigan. While this information is of a general nature and includes all stores, naturally, it has a relation to the retail drug stores of the country.

A report of a survey states that the retail drug stores of the U. S. sell more than a billion and a half of merchandise including about 50,000 different items. The same report states that the 6000 chain stores doing approximately 300 million annual business derive nearly one-third of this volume from soda fountain and lunch counter sales. The survey points out that the place of the wholesale drug house is still of major importance to the drug business.

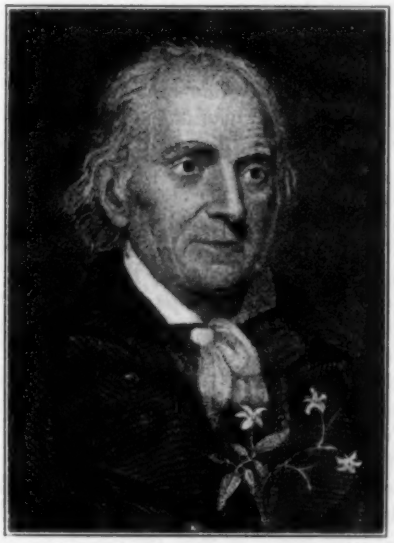
Letter of John Bartram
to Dr. Fothergill.

(See Editoral.)



WORLD PRESS CONGRESS.

All Mexico is preparing to receive and to entertain in fitting manner its guests—newspaper men and women from all parts of the world—who will attend the regional meeting of the World Press Congress, to be held in the City of Mexico August 10th to 14th, inclusive. Every facility of the federal and municipal government here, as well as the hearty assistance and coöperation of business organizations, is giving assurance of the success of the meeting and the attending entertainment.



WILLIAM BARTRAM.
(See Editorial, Bartram's Gardens.)

WINDOW CONTEST FOR PHARMACY WEEK.

Plans for a window contest of nation-wide scope have been made for the seventh annual observance of National Pharmacy Week, October 11 to 17, 1931. The Federal Wholesale Druggists' Association through its secretary, R. E. Lee Williamson of Baltimore, has offered to furnish each year a beautiful silver cup to be awarded by the National Executive Committee on Pharmacy Week for the best professional window display exhibited in any retail pharmacy in the United States during Pharmacy Week. This generous offer on the part of the Federal Wholesale Druggists' Association has been accepted by the National Executive Committee on Pharmacy Week and it is believed that a national window contest conducted each year will create additional interest in Pharmacy Week on the part of retail pharmacists, and the committee is confident that a greatly increased number of Pharmacy Week windows will be in evidence in October.

The mechanics of the contest, which have been decided upon after careful planning, are

quite simple. Every state pharmaceutical association is asked to conduct a state-wide Pharmacy Week window contest. The details of the state contests are left entirely in the hands of the state associations, the only stipulations set forth by the National Executive Committee being that the competing windows be non-commercial, that the photographs show the entire window and that the photograph of the winning window in each state be in the hands of the Chairman of the National Executive Committee on Pharmacy Week by December 1, 1931.

Any phase of professional pharmacy, pharmaceutical education, legislation, literature, etc., may be featured in windows competing for the National Pharmacy Week trophy. Photographs must be large enough so that the details of the window will be plainly shown and although no definite restrictions are made, it can hardly be expected that this could be accomplished in a photograph smaller than 5″ × 7″; 8″ × 10″ being the ideal size.

It is expected that each state association will offer a state trophy for the winning window in each state. A silver cup offered by the state association would be most preferable, although many prizes furnished by manufacturers, wholesalers or individuals within the state would enhance the interest in the state contest. Retail pharmacists in each state can look forward to the detailed plans of their state contest which will be announced by the officers of the state associations.

When the winning photographs from each of the states and the District of Columbia have been received, at the National Pharmacy Week headquarters, 745 Fifth Avenue, New York, N. Y., by December 1st, at which time the national contest will close, they will be sent to a committee of five judges. The judges' committee for the national contest will be selected each year by the chairman of the National Executive Committee on Pharmacy Week.

PERSONAL AND NEWS ITEMS.

Our fellow member, **Elmer H. Wirth,** has earned his doctor's degree at the University of Leiden. The subject of his dissertation embodies pharmacognostical, phytochemical and pharmacological studies on *Lunasia Amara* (Blanco) **var.** *Costulata* (Hoch.).

Dr. Wirth has dedicated the dissertation, which covers more than one hundred and thirty pages, to his wife. He extends thanks to Professor Van Itallie for his interest in the problem; his kindly advice and helpful suggestions and considers the opportunity of working in the laboratory of Professor Van Itallie as a rare privilege.

He thanks Professor Storm van Leeuwen for the privilege of working at the pharmacological board in his laboratory and also for his advice. He expresses his thanks for the help given by Dr. Steenhauer in the preparation of the phytochemical part of the investigation and Dr. Van Niekerk for his assistance in the pharmacological part and the experimental investigations; and Dr. Harmsma for assistance in the phytochemical investigation; and to Mr. Stol for his technical help; and to Dr. R. Wind, chief of the forestry experimental station at Buiten Zorg, who furnished the material for this investigation. The author also makes acknowledgment to the Netherlands and American Foundation of New York for the contribution in the way of a fellowship.

Dr. Wirth returns to this country July 15, 1931. Congratulations are extended to him on the completion of his successful work.

Chairman E. Fullerton Cook, U. S. P. Revision Committee, has been voted the Remington Honor Medal; it will be formally awarded at one of the early N. Y. A. PH. A. Branch meetings.

Dean Charles E. Mollett, of the School of Pharmacy, University of Montana, was recently honored by the alumni and other pharmacists of Montana. The presentation was made at a banquet. The dean thanked his friends and took advantage of the opportunity to express his regrets that the measure providing for a new pharmacy building had not been passed by the legislature.

Dean C. B. Jordan, of Purdue University School of Pharmacy, was the principal speaker at the commencement exercises of Cincinnati College of Pharmacy. The subject was "Pharmacy Needs Leaders."

Secretary E. F. Kelly, of the A. PH. A., was elected an honorary member of Massachusetts Pharmaceutical Association. The same honor was conferred by the Nebraska Association.

Asparagin has been produced by the U. Department of Agriculture. It is used in laboratory studies of tubercle bacilli and in research work on the control and eradication of tuberculosis.

Dr. N. Dorset and Dr. O. F. Black, of the Bureau of Plant Industry, started their in-

vestigation several years ago and later experimental work was done in the biochemic division by T. W. Leduc. Asparagin was formerly imported but the process now evolved will make it possible to manufacture the product in the United States.

Dean Wortley F. Rudd, of Medical College of Virginia, School of Pharmacy, delivered an address at the Alumni Banquet of University of Maryland School of Pharmacy, on "What's Your College?"

Dr. Harvey G. Beck, a graduate of the Pharmacy and of the Medical Department of the University of Maryland, was elected president of the American Therapeutic Society, at its recent annual meeting.

George W. Colburn, Jr., a former president of the Maryland Pharmaceutical Association, was one of the speakers at the Second Economic Conference at the Philadelphia College of Pharmacy and Science, on "The Merchandizing Area of Your Drugstore—How to Analyze and How to Develop It."

Henry Brown, of Scranton, Pa.; **Howard E. Gensler,** of the Bureau of Chemistry, Pennsylvania Department of Agriculture; **Robert Glenk,** curator in charge of the Louisiana State Museum; and **Julius H. Riemenschneider,** president of the N. A. R. D., were honored with the degree of Master of Pharmacy (*honoris causa*) by the Philadelphia College of Pharmacy and Science on June 10th.

J. M. Spoonts, of Wichita Falls, Texas, has been appointed by Governor Sterling to sit on the Texas Board of Health. The appointment comes as a result of a new law passed by the last legislature and introduced by Representative R. L. Reader of San Antonio.

Dr. Edward H. Cary was made President-Elect of the American Medical Association at the recent Philadelphia meeting. Dr. Cary was graduated by the Bellevue Hospital Medical College in 1898. He served in the New York Eye and Ear Clinic, for several years, and as head of the Optholomologic Clinic of Bellevue Hospital Medical College in 1901. Coming to Dallas his first efforts were to have the medical school become part of Baylor University. In this he was successful and the institution has become influential as an educational, medical institution. The writer, having served in the same institution for quite a number of years, can speak of his ability as an organizer and of his friendship.

Dr. Arno Viehoever has developed apparatus which enable him to demonstrate, for lecture or research purposes, "living movies," that is, to show the normal physiological functions of transparent forms of life, as well the action of drugs, as depressants, stimulants, laxatives, etc., on a large scale. By ingenious devices it is now also possible to record, at the same time, visibly, audibly and graphically functions, as the heart beat, movements of breathing organs of normal and convulsive actions of the muscular organs, thus providing a new and quantitative physiological method, applicable to transparent organisms or organs, which show evidently the same responses as do organisms with more complex organization and obscured organs.

Miss Jeannette R. Heghinian graduated from the school of Pharmacy of the University of Maryland; at the same time Miss Heghinian's mother received a certificate in an extension course of Domestic Science. The daughter plans to enter the medical school.

Dr. L. O. Howard, Washington, has been awarded the Capper Medal and the accompanying $5000 prize for distinguished service to American agriculture. Dr. Howard is principal entomologist for the United States Department of Agriculture. He retired as chief of the departmental bureau of entomology in 1927, after service in that capacity for about thirty-three years. He entered the Government service July 1, 1878. Dr. Howard has been given the Capper prize particularly for his work in the discovery and introduction of insects that destroy the insect pests of agriculture.

President W. T. Sanger, president of the Medical College of Virginia, Richmond, announced that the Valentine's Meat Juice Company had made a grant of two thousand dollars a year for a period of three years to the College for the purpose of coöperative research in the basic sciences as related to medicine, dentistry, pharmacy and nursing.

Dean C. B. Jordan, of Purdue University School of Pharmacy, was the principal speaker at the commencement exercises of Cincinnati College of Pharmacy. The subject was "Pharmacy Needs Leaders."

St. John's College, School of Pharmacy, New York City, under direction of **Dean Dandreau,** has instituted a series of talks and lectures relating to subjects closely related to pharmacy. Several of these will be accompanied by television demonstration.

Dallas, Texas, has had the unusual honor of entertaining three of its own citizens in appreciation of preferments which have come to

them; namely—James M. Penland, president of the National Wholesale Druggists' Association; Walter D. Adams (Forney), president-elect of the AMERICAN PHARMACEUTICAL ASSOCIATION; Edward H. Cary, president-elect of the American Medical Association.

Miss Frances Douglas, member of the A. PH. A., a graduate of Baylor University College of Pharmacy is dispensing pharmacist for the Augustana Hospital Pharmacy of Chicago, Ill. She states that the pleasant contacts with doctors and nurses, the consciousness of being a part of one big professional pharmacy, is most gratifying. She loves the work and says she would not exchange places with any pharmacist.

We are indebted to **President Charles E. Wilson,** of Mississippi Pharmaceutical Association, for an account of the annual meeting of this association and also of the Arkansas Pharmaceutical Association. President Wilson was delegate of the AMERICAN PHARMACEUTICAL ASSOCIATION to the latter organization, of which brief mention was made in the June issue. Further report will appear in the next number of both of these State meetings, the report referred to having come in too late for inclusion in this number.

SOCIETIES AND COLLEGES.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIP PRIZES IN SCHOOLS AND COLLEGES OF PHARMACY—1931.

Columbia College of Pharmacy, of the City of New York.—Life membership, provided by J. Leon Lascoff, in the AMERICAN PHARMACEUTICAL ASSOCIATION awarded to a student who has been prominent in student activities and who has maintained a high grade in general scholarship. Awarded to Morris Lipetz.

University of Iowa College of Pharmacy.—As is customary, several prizes have been awarded. Recommendation to membership in the AMERICAN PHARMACEUTICAL ASSOCIATION and dues for one year is the prize for scholarship in several branches. Dean Teeters offers it to the highest ranking student in *Pharmacognosy*, and it was awarded this year to John R. Hedges of Iowa City, a member of the graduating class. Professor Cooper offers the same prize to the second-year student attaining highest standing in *Practical Pharmacy*, and it was awarded to Henry C. Miller of Amana. Excellence in *Organic Chemistry* is honored in the same way by Mr. Gus Scherling of Sioux City. This prize was won this year also by Henry C. Miller of Amana.

Professor Kuever's prize of a year's subscription to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION went to Robert H. Dreker of Aplington.

Massachusetts College of Pharmacy.—Prizes consisting of a nomination to membership and a year's dues in the AMERICAN PHARMACEUTICAL ASSOCIATION are offered by several officers and teachers. These prizes are awarded to members of the graduating class who have made good averages on the senior work in all subjects and exceptional records in separate subjects, as noted.

1. *For the best record* in all senior subjects, to Arthur Baker.
2. *Pharmacy,* offered by Professor La Pierre, and awarded to Myer Katz.
3. *Commercial Pharmacy,* offered by Vice-President Ellis, and awarded to George F. Archambault.
4. *Analytical Chemistry,* offered by Dean Bradley, and awarded to Albert J. Kinsley.
5. *Materia Medica,* offered by President Glover, and awarded to Emma M. Buyniski.
6. *Organic Chemistry,* offered by Treasurer Gammon, and awarded to Harry Koretsky.

University of Pittsburgh, School of Pharmacy, awarded the following A. PH. A. membership prizes:

Pharmacognosy Prize—Awarded to Russell Harold Lawrence.

Materia Medica Prize—Awarded to Melvin William Green.

Pharmacy Prize—Awarded to Samuel Henry Oswald, Jr.

Applied Pharmacy Prize—Awarded to Thomas Turnbull Spence, Jr.

Chemistry Prize—Awarded to Nathan Meyers.

Inorganic Chemistry Prize—Awarded to Meker Levin.

Pharmaceutical Economics Prize—Awarded to Nathan Edward Paransky.

Physiology Prize—Awarded to Claire Frick.

The JOURNAL A. PH. A. would be pleased to hear from other schools and colleges of Pharmacy giving memberships in the AMERICAN PHARMACEUTICAL ASSOCIATION as prizes, for publication. Appreciation is expressed for this coöperation.

JULY STATE ASSOCIATION MEETINGS.

Florida, Miami, July 27–August 1, 1931.
Montana, Helena, July 1931.
Oregon, Seaside, July 14–16, 1931.
Tennessee, Memphis, July 21–23, 1931.

OFFICERS OF STATE PHARMACEUTICAL ASSOCIATIONS.

All state pharmaceutical associations are on record, favorable for a price maintenance measure and, likewise, for a pharmacy corps in the Medical Department of the U. S. Army.

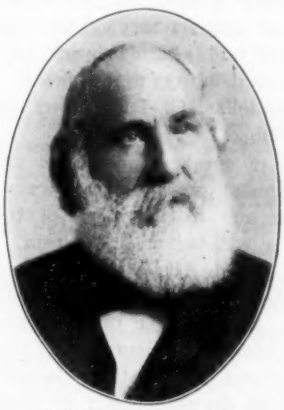
Quite general endorsement and no opposition has been given to resolutions of the AMERICAN PHARMACEUTICAL ASSOCIATION and of the National Association of Retail Druggists. Reference will be made elsewhere of other resolutions.

Attempt has been made to confine the following reports to the election of officers and a few outstanding points, but in preparing the reports at different times several of them, for one reason or another, have gone far beyond the limits set. It is hoped that secretaries will note the list of officers and send in corrections, if necessary.

It is necessary to hold quite a number of reports to succeeding issues of the JOURNAL.

ALABAMA.

Alabama adopted Resolutions 1 and 2 proposed by Hudson County (N. J.) Retail Druggists Association, relating to Prescription



CHARLES T. MOHR.
Alabama pharmacist and scientist, 1824–1901.

Department and Advertising U. S. P. and N. F. Preparations. The meeting was held in historic Montgomery.

The report of Hal E. Duncan, as chairman of the Committee on the Progress of Pharmacy, was of the high type which marks these reports. President Lewis stressed the importance of perfecting the Alabama pharmacy law. Wroe Alderson spoke on the St. Louis survey and Supervisor O. D. Jackson explained the methods of the U. S. Permits Bureau of Industrial Alcohol. Dr. Douglas L. Cannon spoke of the importance of Pharmacy in Public Health matters. Congressman Lester Hill made a telling address on present-day condi-

PHILIP C. CANDIDUS.

Centenary of the birth of Alabama pharmacist, 1831–1910. First Honorary President, A. PH. A.

tions. E. G. Eberle, editor of the JOURNAL A. PH. A., addressed the meeting on the history and progress of pharmacy and brought into his talk the value of the Headquarters Building. Other addresses of interest added to the program.

The following officers were elected: *President*, Paul Lanthrip, Jasper; *First Vice-President*, J. K. Haynie, Opelika; *Second Vice-President*, Fred Martin, Birmingham; *Treasurer*, W. H. Ward, Tuscaloosa; *Secretary*, W. E. Bingham (32nd year).

CALIFORNIA.

One of the outstanding features of the annual meeting of the California Pharmaceutical Association was the educational program, in which the important activities and educational problems were discussed in addresses by men prominent in the profession. Deans Henry C. Biddle and Laird J. Stabler were elected to *Honorary Life Membership* in the Association and two students of the two California Colleges of Pharmacy were elected *Honorary Vice-Presidents*.

The Philip Survey report held attention for an hour and a half, for presentation of facts gathered by the survey. The hope is that out of this study there will result improved conditions under which goods are sold. The discussion brought forward a series of instructive resolutions.

The president in his address outlined the Association's activities.

The Capper-Kelly Bill was reëndorsed and Governor Rolph was thanked for signing the California Fair Trade measure.

Resolutions were adopted providing for representation at the National association meetings by delegates for the California Pharmaceutical Association.

Governor Rolph was asked to give consideration to the bill of the recent legislative session, appropriating $100,000 from the funds of the California Board of Pharmacy to the regents of the University of California for the building and equipping of a pharmacy building on the campus at Berkeley.

The following officers were elected for the ensuing year: *President*, Daniel D. Wray, San Diego; *First Vice-President*, Harvey A. Henry, Los Angeles; *Second Vice-President*, Mrs. Edna Gleason, Stockton; *Third Vice-President*, C. R. Brogan, Los Angeles; *Secretary*, Roy S. Warnack, Los Angeles; *Treasurer*, A. H. Vossmeyer, Los Angeles; *Executive Committee*, Cliff Rose, Oakland; T. D. Perkins, San Diego; W. Bruce Philip, Fruitvale; V. Bressani, San Jose; H. Wagner, Long Beach; Charles Steward, Pasadena; Thomas J. Lenehan, San Francisco.

IDAHO STATE PHARMACEUTICAL ASSOCIATION.

Among the speakers at the Idaho State Convention were President H. C. Christensen, of the A. Ph. A., F. C. Felter and F. R. Peterson.

The officers elected for the ensuing year are: *President*, Sidney H. Woodcock, Cœur d'Alene; *First Vice-President*, H. Thoresen, Hazelton; *Second Vice-President*, H. G. Gardner, Fruitland; *Secretary-Treasurer*, Herschel M. Cummins, Melba. Cœur d'Alene has been selected for the next meeting place.

ILLINOIS.

Illinois Pharmaceutical Association held a successful convention in Juliet. Among the speakers were President H. C. Christensen, of the A. Ph. A. and Julius Riemenschneider of the N. A. R. D.

The following officers were elected for the ensuing year:

President, Leo L. Mrazek, Chicago; *First Vice-President*, T. B. Shaffer, Oneida; *Second Vice-President*, Arthur Van Hooser, Metropolis; *Third Vice-President*, George V. Haering, Chicago; *Secretary*, W. B. Day, Chicago; *Treasurer*, George M. Bennett, Urbana.

MARYLAND.

The address of President Lawrence S. Williams, as the show-globes in which he is much interested, reflects the light of his observations; he said, "it is largely a résumé of the year's work." He gave himself only a few idle moments during the year that could be taken out of the daily program. He stressed and put into practice contact with pharmacists and physicians, discussed legislative matters, referred to association affairs, the pharmacy school and the board. His summary was expressed in twelve recommendations—a number of which serve for guidance, preparation for the 50th aniversary meeting of the Association, the show-globe was included; an effort toward improved pharmacy and pharmacies, that historical material be collected and an historical sketch be prepared for presentation at the Jubilee meeting.

The Scientific Session, under the direction of Dr. Krantz included subjects dealing with the trend of materia medica, the standards, prescriptions and pharmaceutical procedure. Among the contributors were Adley B. Nichols, W. F. Reindollar, C. Jelleff Carr and Fitzgerald Dunning.

The list of speakers and those presenting papers ihcluded men of prominence in the Association and from outside of the state, rendering a well-balanced program; among them, Dr. J. M. H. Rowland, dean of the Medical School, University of Maryland; Dr. R. L. Swain spoke on the prescription survey in Maryland, George W. Colburn, on departmentizing a drug store; Joseph Clower explained the drawing power of window displays; other papers of equal or greater value were contributed to the program. Twenty-four resolutions were presented dealing with Association matters and national affairs—the establishment of a pharmacy corps in the U. S. Army was endorsed, price maintenance, promotion of pharmacy in every way; members

who have ceased their labors were memorialized.

An outstanding part of the banquet was Governor Ritchie's address; deeply interested in Public Health matters, he is ever ready to speak on the subject, giving pharmacy rightful recognition for its service.

Secretary E. F. Kelly was elected *Honorary President;* other officers for the ensuing year are:

President, Wm. B. Spire, Mt. Rainier; *First Vice-President,* L. M. Kantner, Baltimore; *Second Vice-President,* L. V. Johnson, St. Michaels; *Third Vice-President,* A. F. Ludwig, Baltimore; *Secretary,* E. F. Kelly, Baltimore; *Treasurer,* Harry S. Harrison, Baltimore. *Editor of the Maryland Pharmacist,* Robert L. Swain, Baltimore.

MICHIGAN PHARMACEUTICAL ASSOCIATION.

The annual meeting of the Michigan Pharmaceutical Association was held at Grand Rapids during the week of June 22nd. Steps were taken to hold the fiftieth anniversary meeting in Lansing next year.

The following officers were elected:

President, Jacob C. Dykema, Grand Rapids; *First Vice-President,* F. H. Taft, Lansing; *Second Vice-President,* Duncan Weaver, Fayetteville; *Secretary* R. A. Turrell, Croswell; *Treasurer,* Clarence Jennings, Lawrence.

GOLDEN JUBILEE MEETING OF NEBRASKA PHARMACEUTICAL ASSOCIATION.

The Golden Jubilee meeting of the Nebraska Pharmaceutical Association was held at Lincoln, June 8th–11th. Among the speakers were E. E. Duryee, secretary to the Board of Pharmacy, who spoke on "The Mystery of Board Examinations." President Lucien Stark of the State Medical Association stressed the importance of closer coöperation between the pharmacist and physician and cited instances in which one could be helpful to the other.

Dean Newton spoke for the Creighton University College of Pharmacy, and Prof. J. B. Burt for the University of Nebraska.

Among the ex-presidents who attended the meeting were the following: Lincoln Wilson, C. H. Wilson, D. J. Fink, C. B. Christoph, Will Brookley, Niels Mikkelsen, W. E. Clayton, Davis S. Simms, Loran Jordan, Fred Witt, O. V. McCracken, Smith C. Wilson.

Secretary Samuel C. Henry spoke of N. A.-R. D. activities. President C. O. Doherty, of the South Dakota Pharmaceutical Association, delivered an address on "Being Sales Minded."

President M. E. Rasdal in his address advocated a year's work in a store largely devoted to prescription practice for candidates applying for registration.

J. C. THYGESON.

Omaha was chosen for the 1932 meeting. The following officers were elected:

President, J. C. Thygeson, Nebraska City; *First Vice-President,* F. G. Creutz, Wausa; *Second Vice-President,* Ed. Beranek, Ord; *Third Vice-President,* C. S. Lincoln, Lincoln; *Fourth Vice-President,* L. A. Tyson, Elmwood; *Fifth Vice-President,* R. L. Whaley, Wahoo; *Secretary,* J. G. McBride, Lincoln; *Treasurer,* D. D. Adams, Nehawka.

NEW JERSEY.

Messrs. Littell and Rust, who helped to organize the New Jersey Pharmaceutical Association 61 years ago, were present at the annual meeting in Atlantic City. President Schamach's address was informative and contained a number of important recommendations. Dr. Robert P. Fischelis presented three resolutions in submitting the report of the Committee on Pharmaceutical Education and Standards; they were adopted and are as follows:

Resolved, That it is the sense of the New Jersey Pharmaceutical Association that the

four-year course in Pharmacy, which is to be required of applicants for registration who begin their College course any time after January 1, 1932, shall be a course of university grade leading to the degree of Bachelor of Science in Pharmacy.

Resolved, That it is the sense of the New Jersey Pharmaceutical Association that any four-year course in Pharmacy leading to the degree of Bachelor of Science in Pharmacy shall meet the requirements of the modern Pre-Medical education, so that graduates of the four-year course in Pharmacy may enter directly upon the recognized four-year course in Medicine, if they desire to do so.

Resolved, That it is the sense of the New Jersey Pharmaceutical Association that Colleges of Pharmacy make available to their students elective courses which will be designed to train them for specific functions in the research, manufacturing and distributive fields of Pharmacy.

The following officers were elected for the ensuing year: *President*, William A. Chamberlain, Collingswood; *First Vice-President*, Emanuel Beitman, Newark; *Second Vice-President*, Hugo Krause, Atlantic City; *Treasurer*, Charles J. McCloskey, Culver Lake; *Local Secretary*, Hugo Krause, Atlantic City.

NEW MEXICO.

The third annual meeting of New Mexico Pharmaceutical Association was held in Albuquerque, May 20th–21st and it was a success. The Association is in favor of the state meeting being held in 1932 in El Paso with the druggists of Arizona and Western Texas. The officers for the ensuing year are:

President, R. M. Tigner, Roswell; *First Vice-President*, Carl F. Moore, Clovis; *Second Vice-President*, Miss Geraldine Du Bois, Corona; *Secretary-Treasurer*, H. E. Henry, Albuquerque.

NORTH CAROLINA.

Among the speakers at the North Carolina Pharmaceutical Association were: Robert J. Ruth on "Selling Professional Service;" John A. Goode on "My Plan of Drug Store Operation," and many other equally important papers.

A resolution was adopted congratulating California on the adoption of a State price maintenance measure; another, honoring the late E. V. Howell.

The following officers were installed at the closing session: *President*, A. E. Weatherly, Greensboro; *Vice-Presidents*, Paul Webb, Sr., Shelby, John C. Hood, Kinston, J. M. Hall, Sr., Wilmington; *Secretary-Treasurer*, J. G. Beard, Chapel Hill (reëlected); *Members of the Executive Committee:* G. K. Grantham, Sr., Dunn (1-yr. term); C. L. Eubanks, Chapel Hill (2-yr. term); Warren W. Horne, Fayetteville (3-yr. term). The 1932 convention will be held in High Point and A. C. Cecil has been named *Local Secretary*.

The following nominees for office in 1932–1933 were selected, the election to be by mail ballot: *President*, E. C. Adams, Gastonia, and Polk C. Gray, Statesville; *First Vice-President*, A. C. Cecil, High Point, and Ralph P. Rogers, Durham; *Second Vice-President*, W. C. Ferrell, Nashville, and Jas. M. Hall, Sr., Wilmington; *Third Vice-President*, H. M. Cooke, Salisbury, and E. F. Rimmer, Charlotte; *Secretary-Treasurer*, J. G. Beard, Chapel Hill, and Sam E. Welfare, Winston-Salem; *For Member of the Executive Committee for Three-Year Term:* C. C. Fordham, Sr., Greensboro, and C. B. Miller, Goldsboro.

NEW YORK PHARMACEUTICAL ASSOCIATION.

A most interesting list of papers was presented and discussed at the meeting of the New York State Pharmaceutical Association last month. The session for considering these papers was under direction of Chairman Hugo H. Schaefer of the Committee on Pharmacy and Queries.

Congressman Clyde Kelly spoke on the Capper-Kelly Bill.

President Nicholas S. Gesoalde presented a comprehensive address and embodied most of its points in sixteen recommendations; among them, a study of the constitution and by-laws of the Association for the purpose of revision. The publication of an official organ, provision for a full-time secretary; means for pharmaceutical publicity; visitation by the president to local associations.

One of the most interesting reports was that of the Committee on Commercial Interests by Chairman Leon Monell. The report was based on a questionnaire sent to every pharmacy in the state.

Resolutions adopted will be referred to later or in another issue of the JOURNAL.

The following officers were elected for the ensuing year:

President, Albert A. Muench, Syracuse; *First Vice-President*, Harry H. Miller, Westchester;

Second Vice-President, John F. O'Brien, Rochester; *Third Vice-President*, John Scavo, New York; *Secretary*, Edward F. Dawson, Syracuse; *Treasurer*, Richard A. Austin, Cairo.

OHIO.

Officers elected at the recent meeting of Ohio Pharmaceutical Association are as follows:

President, John W. Darr, Girard; *First Vice-President*, Anthony Ejbl, Cleveland; *Second Vice-President*, Charles W. Ehlers, Cincinnati; *Secretary*, Theodore D. Wetterstroem, Columbus; *Treasurer*, L. W. Funk, Columbus; *Member of the Council*, Robert Ludwig, Toledo.

Delegates were elected for the A. PH. A. meeting—C. A. Dye, Edward Spease and M. N. Ford; for the N. A. R. D. meeting—Theodore D. Wetterstroem and Henry Pollack.

TEXAS.

The Texas Pharmaceutical Association has made a further contribution of $1500.00 as part of the $5000.00 fund which is to be used in furnishing and endowing the Editorial rooms in the Headquarters Building at Washington. The first $1000.00 was given by Dallas members of the Texas Association, also $500.00 by members in Waco and a $1000.00 came from San Antonio. While the conditions have not been entirely favorable, there has been an expression of optimism in the collection of this fund. The list of contributors is lengthy but these subscribers will not object to the mentioning of the names of Tom Coulson and Henry F. Hein for their part in collecting this fund. It is hoped to complete this fund by a large number of small donations from all sections of the state.

A daily paper—"The Morning Mortar and Pestle" was issued during the convention—editors—Mildred Culbreath and Margaret Cousins. While the purpose was to add entertainment, events of the day were mentioned. The reporter, M. B. Davis, with twenty-five years of efficient service back of him, was presented with a desk for his office, as a token of appreciation.

Among the speakers of the convention were: Julius Riemenschneider, W. F. Gidley, Chester A. Duncan, Henry Hein, Edwin B. George, U. S. Department of Commerce, on St. Louis Survey; O. D. Jackson, Bureau of Industrial Alcohol. Judge Atwell, U. S. District Court, Congressman Martin Dies delivered addresses, touching on various phases of the drug business and general affairs. There were other speakers, all of them worthy of mention.

Secretary Adams received recognition as the president-elect of the AMERICAN PHARMACEUTICAL ASSOCIATION. Reports of transactions would go far beyond the limits of this section. The Women's Auxiliary held an interesting session, their interest is shown in the provision for scholarships, in the School of Pharmacy, for young women; also, by their cooperation in everything that promotes the Association.

At the luncheon of the Drug Travelers' the first president, Milton H. Hickox, and the first secretary, E. G. Eberle, were present; also, two of the organizers, J. M. Penland and Ed. Gallagher. The banquet was attended by about 1500 and Hon. Clarence Ousley presided as toastmaster, at which time, among others, Thomas Roach, former president of the N. A. R. D. was a speaker; he is also the vice-chairman of the House of Delegates, A. PH. A. The presentation to the fund was made at this delightful occasion.

The address of President John B. Ray covered the Association's activities and stressed the obligations of pharmacists. Herbert Mayes expressed himself favorably on the program of the convention. Resolutions adopted included those relating to closer coöperation with physicians, promoting U. S. P. and N. F. preparation, discouraging combination deals, favoring a pharmacy corps in U. S. Army, price maintenance, attendance at Conferences of Secretaries, etc.

The officers of the ensuing year are:

President, E. B. Oliver, Longview; *First Vice-President*, L. C. Brenner, Gonzales; *Second Vice-President*, Lee Stinson, Snyder; *Secretary-Treasurer*, Walter D. Adams, Forney; *Home Secretary*, J. W. Graham, Austin; *Historian*, C. A. Duncan, Dallas.

UTAH.

Utah Pharmaceutical Association held its annual meeting at Salt Lake City, June 8th–9th. Among the speakers of the convention were President H. C. Christensen, F. C. Felter and John Culley. The latter explained in detail the Philip Survey and resolutions of approval of this work were adopted.

The following officers were elected for the ensuing year:

President, Dean A. Clark, St. George; *First Vice-President*, G. D. Charlier, Sandy; *Second Vice-President*, Wilfred Anderson, Wellsville; *Secretary*, George F. Flashman, Salt Lake City;

Treasurer, Eugene L. Wade, Salt Lake City. The 1932 meeting will be held in Ogden.

VERMONT.

Vermont voted to send delegates to the A. PH. A. and N. A. R. D. meetings, and to contribute to the Drug Trade Bureau of Public Information. James F. Finneran spoke on "The Successful Pharmacist."

The officers of the ensuing year are:

President, Ellis Parry, Vergennes; *First Vice-President*, L. W. Leonard, ———; H. E. Colman; J. W. Abraham, Rutland; *Secretary-Treasurer*, Welcome B. Eastman, St. Johnsbury.

GOLDEN ANNIVERSARY MEETING OF VIRGINIA PHARMACEUTICAL ASSOCIATION.

The fiftieth annual meeting of Virginia Pharmaceutical Association was held at the Cavalier Hotel, Virginia Beach, June 22nd–24th. President G. E. Heller of Bedford presided.

Among the speakers were Robert J. Ruth on "Selling Professional Services;" R. P. Fischelis on "Looking Ahead;" E. F. Kelley on "Pharmaceutical Progress;" Congressman Clyde Kelly spoke on "Outstanding Problems in Business;" and Charles R. O'Malley on "Increasing the Average Sale."

The Commercial Section, under the direction of Chairman W. G. Crockett, had an excellent program concerned chiefly with the commercial aspects of professional pharmacy. The speakers on the program were, W. E. Locke on "The Prescription Department as a Commercial Asset;" Dr. R. W. Miller on "Professional Pharmacy from the Physician's Point of View;" N. G. Miller spoke on "U. S. P. and N. F. Preparations as a Field for Profit;" and S. L. Hilton spoke on "Professional Pharmacy from the Pharmacist's Point of View."

A resolution was passed authorizing the offering of a cup for the Pharmacy Week window each year in Virginia; also endorsement was given to nation-wide observations of the two hundredth anniversary of the birth of George Washington.

The following were elected honorary presidents of the Association: M. E. Church, Falls Church; R. W. Miller, Richmond; J. E. Jackson, Tazewell; C. H. Lumsden, Lynchburg; E. C. Hamner, Lynchburg.

WASHINGTON STATE.

The annual meeting of the Washington State Pharmaceutical Association was held at Ft. Angeles, June 22nd–24th. Considerable favorable discussion was had on the Philip Survey and resolutions of approval were passed. The national associations were given hearty approval by resolution.

The following officers were elected:

President, L. D. Bracken, Seattle; *District Governors*, A. D. Sloan, Yakima; William Gray, Wilbur; George L. Sears, Chehalis; Earl Brown, Bremerton; George Finnegan, Bellingham; *Secretary*, Harry W. Ayres, Seattle; *Treasurer*, Graham A. Dondie, Seattle.

WEST VIRGINIA.

President C. H. Goodykoontz was unavoidably absent on account of illness; Arch Krieg presided over one of the best conventions held by West Virginia pharmacists. Among the speakers were Roy Bird Cook on "West Virginia Pharmaceutical Association;" E. L. Newcomb on "Relationship of the Retailer and Wholesaler;" Samuel C. Henry spoke on legislative matters; the Capper-Kelly bill receiving careful consideration. Alfred Walker, the first president of the Association, received hearty congratulations. Secretary S. C. Henry assisted in the organization of the West Virginia Veterans' Association; the officers are: Ernest K. Hoge, G. O. Young and honorary president, Alfred Walker.

The officers elected for the ensuing year are:

President, E. K. Hoge, Wheeling; *First Vice-President*, H. O. Boette, Huntington; *Second Vice-President*, Thomas Bradley, Matoaka; *Third Vice-President*, H. J. Matthews, Mannington; *Member of the Council*, G. O. Young, Buckhannon; *Secretary-Treasurer*, J. Lester Hayman, Morgantown. The 1932 meeting will be held at White Sulphur Springs.

UTAH AND WYOMING ASSOCIATIONS.

Utah and Wyoming at their annual conventions held last month adopted resolutions to bring before the manufacturers a request that they consider the resolutions of the California survey in an effort to find a legal and reasonable way to better the deplorable and unfair merchandising conditions.

OBITUARY.

ROBERT J. RUTH.

Robert J. Ruth, member of the AMERICAN PHARMACEUTICAL ASSOCIATION, died in Sinai Hospital, Baltimore, Maryland, on July 4th, after a short illness. He was the originator of Pharmacy Week and his activities as National Chairman of its Executive Committee since the first annual observance in 1925 had won him international recognition.

Dr. Ruth had arranged to speak at the June meetings of a number of state pharmaceutical associations. He left New York on June 12th and had partly completed his itinerary and was preparing to go to Rehoboth Beach, Delaware, to address the members of the Delaware Pharmaceutical Society when he was obliged to give up.

He had not been feeling well for a week or more, but, against the advice of Mrs. Ruth, who was with him, he determined to complete his schedule. But at Baltimore, his condition became worse and on Monday, June 29th, he entered Sinai Hospital, believing that he was suffering with malaria. The diagnosis, however, showed typhoid. His condition grew rapidly worse until the end.

The deceased was born in Bellevue, Ohio, on the 19th day of February 1891. At the age of eight he moved to the neighboring town of Elyria. Here he finished the grammar schools and in 1908 graduated from the Elyria High School.

Before this he became interested in the subject of pharmacy and during his junior year in high school he secured a position in a local drug store, where he was employed until 1909, when he moved to Fremont, Ohio, and was employed in a pharmacy there for another year. He entered the Philadelphia College of Pharmacy and Science in 1910, from where he was graduated in 1913 with the degree of Doctor in Pharmacy.

The first two years, following his graduation, were spent in Dallas, Texas, where he was a member of the Medical and Pharmaceutical Faculties of Southern Methodist University; the first year as assistant professor of Chemistry, and the second year with a full professorship and also teaching Biochemic Therapy.

In 1915 he entered the employ of Eli Lilly & Co. of Indianapolis, Indiana, where he remained for one year, leaving in 1916 to engage in the retail drug business at Elyria, Ohio. He was the proprietor of two pharmacies there until 1923, when he disposed of them to become affiliated, in the capacity of Field Secretary, with the Philadelphia College of Pharmacy and Science. For three and a half years, he visited thousands of graduates of this institution in all parts of the United States and in Cuba, in the interests of the College. He was especially successful in securing contributions to the College Building and Endowment Fund. He also delivered scores of addresses before the student bodies of Colleges of Pharmacy; local district, state and national pharmaceutical organizations and civic bodies.

In 1924, Dr. Ruth first suggested National Pharmacy Week in his Chairman's address before the Section on Practical Pharmacy and Dispensing of the AMERICAN PHARMACEUTICAL ASSOCIATION at the annual meeting held in Buffalo. Besides being the originator of the Pharmacy Week movement, he had been the National Chairman of the Pharmacy Week Executive Committee since the first annual observance in 1925. The National Pharmacy Week Executive Committee represents all American pharmacy. The Pharmacy Week movement has spread to every English-speaking country in the world and the pharmacists of Spanish countries are now interesting themselves in the movement.

In 1926, Dr. Ruth was the Director of the American Pharmacy Exhibit at the Sesqui-Centennial International Exposition held in Philadelphia that year. He planned and installed the American Pharmacy Exhibit in the Palace of Education and Social Economy and it was awarded the gold medal.

In 1927, the Philadelphia College of Pharmacy and Science conferred upon him the honorary degree of Master in Pharmacy (Ph.M.).

July 1, 1927, Dr. Ruth became affiliated with E. R. Squibb & Sons, New York, in the executive capacity of Chief of the Pharmaceutical Division, Professional Service. Since then he has lectured at every college of pharmacy in the United States and at many of the colleges of medicine and dentistry as well as before lay bodies. His duties carried him to every state in the Union and he was a familiar figure at the national and state pharmaceutical conventions. He was also a constant contributor of original articles to the pharmaceutical press of the world.

The deceased was a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, the Penn-

sylvania Pharmaceutical Association, The Philadelphia and New York branches of the AMERICAN PHARMACEUTICAL ASSOCIATION, the Philadelphia College of Pharmacy and Science; the College of Pharmacy, Columbia University; the International Society for History of Pharmacy, and an associate member of the Philadelphia Association of Retail Druggists. He had been both Secretary and Chairman of the Section of Practical Pharmacy and Dispensing and a member of the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Dr. Ruth is survived by his wife, by his parents, Mr. and Mrs. William H. Ruth, of Elyria, Ohio, and by a sister, Mrs. Paul W. Kreidler, of Fremont, Ohio.

Funeral services were held at Baltimore on July 5th. Interment took place at Fremont, Ohio, on the Tuesday following. Among those who attended the Baltimore service were Dr. and Mrs. E. F. Kelly, Editor and Mrs. E. G. Eberle, Dr. J. C. Krantz, Dr. and Mrs. R. L. Swain, Dr. G. L. Jenkins, C. E. McCormick and Jerome Murphy, Baltimore; Dr. and Mrs. S. L. Hilton, Washington, Dr. and Mrs. E. Fullerton Cook, Dr. and Mrs. Ambrose Hunsberger and John C. Walton, Philadelphia. Representatives of E. R. Squibb & Sons were also present.—LEWIS N. DAVIS.

PATRICK SEBASTIAN GLEASON.

Patrick S. Gleason, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1904, died last October, aged 62 years. Notice did not come to this office until recently, therefore this belated notice. The deceased was one of Waltham's (Massachusetts) leading citizens and business men and highly esteemed. He was a graduate of Massachusetts College of Pharmacy. Mrs. Gleason survives her husband.

DR. HOBART AMORY HARE.

Dr. Hobart A. Hare, for many years professor of therapeutics, materia medica and diagnosis at Jefferson Medical College, Philadelphia, died June 15th, aged 68 years. Dr. Hare was born in Philadelphia, September 20, 1862, the son of Bishop William H. and Mark Amory Howe Hare. He received his M.D. degree from the University of Pennsylvania in 1884 and a B.S. degree from the same institution in 1885. Subsequently he studied in London, Leipzig and Berne, and he had honorary degrees from Jefferson Medical College and the University of Pennsylvania. He became a member of the medical faculty of the university in 1890, and in the following year began his long professorship at Jefferson, from which he resigned a few years ago.

Dr. Hare was the author of a number of standard works on medical subjects. He was also prominent in medical journalism for about forty years. He was one of the authors of the "National Standard Dispensatory" and was elected a member of the U. S. P. revision committee in 1900.

CALVIN HENRY KAUFFMAN.

Dr. Calvin Henry Kauffman, internationally known as a botanist and a member of the faculty of botany at the University of Michigan since 1904, died June 14th at his home in Ann Arbor, Mich. He was sixty-two years old and a native of Lebanon, Pa. He took his bachelor's degree at Harvard, a master's degree at Cornell, and his doctor's degree at Michigan, the last named in 1907. During the World War he was attached to the horticultural board of the United States Department of Agriculture. For the last ten years he had been professor of botany and director of the University herbarium. He was a member of numerous scientific societies and the author of many articles on botany.

LORD TRENT.

Lord Trent, of Nottingham, formerly Sir Jesse Boot, founder of the British chain of retail drug stores known as "Boots Cash Chemists," died June 13th in St. Heliers, Isle of Jersey. He was eighty-one years old and had been completely paralyzed for a number of years.

Jesse Boot was born in Nottingham in June 1850. He began his business life as a boy, helping his widowed mother in a small general shop. His entry into the "chemists" business was an innovation in England, as his shops were the present-day variety-stocked drug stores. To-day the business, centrally the Boots Pure Drug Company, established in 1888, is controlled by Drug, Inc., through the United Drug Company, Boston.

Mr. Boot was knighted by patent in 1909, was created a baron in 1917 and was raised to the peerage in 1929. He was widely known for his generous philanthropies and his marketing aid for Jersey farmers. His heir is the Hon. John Campbell Boot, chairman of the board of the Boots Pure Drug Company.

ADDITIONS TO PROGRAMS OF THE SECTIONS, A. PH. A., MIAMI MEETING, JULY 27TH TO AUGUST 1ST.

The following are additional to the programs printed in the June issue of the JOURNAL, pages 610, *et seq.* The following numbers will be rearranged in the *Official Program.* Time will not permit reprinting, but titles are complete as far as these have been received.

Omissions of titles will be included in Official Program and in the minutes of the proceedings of the Sections.

SCIENTIFIC SECTION.

Additions.

"Rape Oil as an Adulterant of Olive Oil," C. W. Ballard.

"Quality of Japanese Peppermint Oil Produced in Florida," B. V. Christensen and L. D. Hiner.

"Quality of Spearmint Oil Produced in Florida," B. V. Christensen and L. D. Hiner.

"Incompatabilities of Important Newer Chemicals," Charles F. Lanwermeyer.

"The Standardization and Stabilization of Ergot Preparations. VIII. The Study of Methods of Assaying Ergot Preparations and the Hydrogen-Ion Concentration Factor," E. E. Swanson., C. E. Powell and A. N. Stevens.

"The Assay of Pepsin," Glenn L. Jenkins and H. L. Greenberg.

"Pitocin and Pitressin Stability," L. W. Rowe.

"The Local Reactions Produced by Intramuscular Injection of Some Antimony Compounds," A. E. Jurist and W. G. Christiansen.

"A Study of the Germicidal Activity of Aromatic Sulfides," E. Moness, W. Braker and W. G. Christiansen.

"A Comprehensive Study of the Preparation of Colloidal Silver Iodide and a Report of Its Bactericidal and Bacteriostatic Value," W. A. Lott and W. G. Christiansen.

"A U. S. P. Standard for the Volatile Oil Content of Cardamon," C. J. Zufall and George DeKay.

"Transparent Life Studies 2. Effect of Strychnia on Daphnia," Arno Viehoever and Anna Schwenk Mikuriija.

"The Phytochemistry of Podophyllum Peltatum," Arno Viehoever and Elsie M. Klenke.

"Further Studies Concerning the U. S. P. X Bio-Assay Standard for Fluidextract of Ergot," Marvin R. Thompson.

"*p*-Nitrobenzyl Halides as Reagents for the Identification of Primary and Secondary Amines," Edward Lyons.

"The Biological Assay of the Water-Soluble Antineuritic and Antipellagric Vitamins," Howard T. Graber and Russell A. Cowles.

"The Effect of Storage of Distilled Water in Glass Ampoules on the Alkalinity and Total Solids Content," A. O. Mattheus.

"Studies in Extraction as Applied to N. F. Preparations," Earl Guth and H. A. Langenhan.

"Studies on the Determination of Camphor in Camphor Liniment," Charles F. Poe, Goldner Lipsey and David W. O'Day.

"Effect of Ordinary Light and Ultra-Violet Light on Extracts of Essential Oils in (1) Alcohol (2) Fixed Oils," Charles F. Poe, E. C. Jones and Ford Millikan.

"A Proposed Method for Determination of Camphor in Spirit of Camphor," Charles F. Poe and Elmer Plein.

SECTION ON EDUCATION AND LEGISLATION.

(See June JOURNAL, page 611.)

PAPERS.

"A Century of Progress in Pharmaceutical Education"—Chairman's Address, B. V. Christensen.

"California Junior Capper-Kelly Bill," W. Bruce Philip and Fayetta H. Philip.

"The California Anti-Discrimination Act Enacted 1931," W. Bruce Philip and Fayetta H. Philip.

"Inspections," John E. Kramer.

"Are Beginning Pharmacy Students Up to the Standard?" C. B. Jordan and H. G. DeKay.

"Pharmaceutical Engineering," Arthur F. Peterson and Robert J. Ruth.

"A Century of Progress in Pharmaceutical Education," B. V. Christensen.

"A Course in Pharmacal Sundries and Sick Room Supplies," C. W. Ballard.

"The Next Prerequisite," F. J. Wulling.

"Five Years of Intelligence Testing," A. B. Lemon.

"Student Activities in a College of Pharmacy," H. C. Biddle.

"The Pharmacist in the Federal Civil Service," Paul G. Thomas.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

(See June JOURNAL, page 611.)

Additional Papers.

"An Experimental Study of the Deteriora-

tion and Assay of Spirit of Ethyl Nitrite," Marvin J. Andrews.

"Solution of Iodine for Germicidal Purposes (from the Pharmaceutical Standpoint)," Charles H. LaWall and Linwood F. Tice.

"Solution of Iodine for Germicidal Purposes (from the Bacteriological Standpoint)," Louis Gershenfeld and Ruth E. Miller.

"Solution of Iodine for Germicidal Purposes (from the standpoint of Variations in the Germicidal Properties of Iodine Solutions Imposed by the Influence of Solvents)," George M. Karns and George D. Beal.

"A New Iodine Ointment for Antiseptic Purposes," Charles H. LaWall and Linwood F. Tice.

SECTION ON COMMERCIAL INTERESTS.

(See June JOURNAL, pages 611–612.)

Additional Papers.

"Drug Store Vocabulary and Deportment," Fayetta H. Philip.

"Purdue University Pharmacy Extension Department," J. L. Weinland.

"Is the Manufacture Coöperating?" J. W. Slocum.

"Meeting Cut Price Competition," William Emrich.

"Window Merchandising," Henry W. Heine.

"The Ten Cent Table in the Drug Store," G. H. Grommet.

"What I Believe Is Wrong with the Drug Store," Bernard M. Keene.

"Paper (title not announced)," C. Leonard O'Connell.

"Know Your Business by Comparison," Charles J. Clayton.

"The Manufacturer and Honest Merchandising Conditions," James T. Dumas.

"Our Best Customer's Baby," Samuel Krone.

"The Ice Cream Situation," Samuel Krone.

Change the title—"Results of the New York State Economic Questionnaire" to "Some Facts Brought Out by the New York State Questionnaire on Business Conditions in 1930," Leon Monell.

SECTION ON HISTORICAL PHARMACY.

(See June JOURNAL, page 612.)

Additional Papers.

"Introduction of Chemical Pharmacology and Therapeutics," Charles Whitebread.

"The White House Contributor to Our Section on Historical Pharmacy," Robert J. Ruth.

"How Old Is the AMERICAN PHARMACEUTICAL ASSOCIATION?" James H. Beal.

"An Attempt at a Phytochemical Bibliography," Edward Kremers.

"A Brief History of the College of Pharmacy, University of Florida," Townes R. Leigh.

"History of Pharmacy in South Carolina," J. Hampton Hoch.

"The Pharmacist's Show Globes," Aaron Lichtin.

"History of the Florida State Pharmaceutical Association," Laurie J. Taylor.

"The Rise of Organized Pharmacy in West Virginia," Roy S. Cook.

"History of the Florida State Pharmaceutical Association," Laurie J. Taylor.

CONFERENCE OF PHARMACEUTICAL ASSOCIATION SECRETARIES.

(See June JOURNAL, page 612.)

Subjects of Round Table Discussions:

"To What Extent Is the Secretary Responsible for the Activities of His State Association," led by W. E. Bingham.

"A Weak State Association," led by Robert C. Wilson.

"Plans for Institute Work as an Association Activity," led by J. W. Slocum.

"What Services Can a Full Time Secretary Render That Will Justify the Expenditure," led by Carl G. A. Harring.

"Different Ways of Increasing Association Membership," led by Carl G. A. Harring.

"How Can the Secretary Best Deal with Delinquent Members?" led by Carl G. A. Harring.

THIRD ANNUAL MEETING OF THE CONFERENCE OF PHARMACEUTICAL LAW ENFORCEMENT OFFICIALS.

(See June JOURNAL, page 612.)

Additional Subjects.

"The Need of Reasonable Restrictions in the Sale of Drugs and Medicines," John M. Woodside, Pennsylvania.

"Enforcement of the Kentucky Pharmacy Law by Injunction," Member of Kentucky Board of Pharmacy.

NATIONAL CONFERENCE ON PHARMACEUTICAL RESEARCH.

(Complete, but subject to re-arrangement and introduction of additional reports, discussions, etc.)

NINTH ANNUAL SESSION PLANT SCIENCE SEMINAR.

(See page 613, June JOURNAL.)

Additional Items.

Friday A.M.—Leave for Miami, via Avon Park, etc., where a stopover will be made to inspect the large collection of native and exotic plants, with Mayor C. S. Donaldson as guide. Trip to Miami continued via Fort Myers and across the Everglades. From Miami side trips have been arranged to Chapman Field, Mr. H. W. Johnston's collection near Homestead, and some of the wonderful gardens in the City of Miami.

Entertainment for the ladies at both Gainesville and Miami.

SYMPOSIUM GENUS MENTHA.

The Fifth Symposium on the Genus Mentha will hold its annual meeting on Thursday afternoon, July 23rd at one o'clock in the Chemistry-Pharmacy Building of the University of Florida, Gainesville, Florida.

The Mint Symposium at the last business session voted to hold its next meeting with the Plant Science Seminar and the Seminar has very kindly alloted the afternoon of Thursday, July 23rd to the program of the Symposium. It is hoped that the members of the Symposium will arrange to leave for Miami a few days in advance of the regular meetings of the AMERICAN PHARMACEUTICAL ASSOCIATION and attend the Plant Science Seminar and the Symposium on the Genus Mentha.

As in previous years, the program will be conducted in the form of a round-table discussion. If you are planning to present a paper, please send me the title and a short abstract of the contents for our completed program.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

Program will appear in "Official Program."

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY.

(See June JOURNAL, pages 581–583.)

Additional Programs.

In the joint session program with National Association of Boards of Pharmacy omit the topic "What Credit Can Be Given toward the Practical Experience Requirement for Work Done in Colleges of Arts and Science?"

The lines on page 583, beginning with subhead "Conference of Teachers of Pharmaceutical Economics" to end, should be inserted following "Appointment of Committee Resolutions," third line from bottom of page 581.

CONFERENCE OF TEACHERS OF MATERIA MEDICA.

Officers: A. Richard Bliss, Jr., *Chairman;* J. F. Bacon, *Secretary.*

PAPERS.

"The Term 'Pharmacology,' Its Meaning and Its Adaptation in the Pharmaceutical Syllabus," A. Richard Bliss, Jr. Discussion opened by Dr. H. C. Wood, Jr., Dr. R. A. Lyman and Dr. W. H. Zeigler.

"Materia Medica," B. V. Christensen. Discussion opened by Dean W. B. Day, Dean E. R. Serles and Dean G. C. Schicks.

"What Is Pharmacognosy?" Heber W. Youngken. Discussion opened by Dr. C. C. Plitt, Dr. L. K. Darbaker and Dean E. T. Motley.

CONFERENCE ON PHARMACEUTICAL ECONOMICS.

Officers: *Chairman,* C. Leonard O'Connell; *Secretary* Howard C. Newton.

Program.

Report of the Chairman, C. Leonard O'Connell "Business Subjects Planned for Inclusion in the New Syllabus," Paul C. Olsen.

"Extension Work in Pharmacy at Purdue University," J. L. Weinland.

Discussion on "How to Make the Best Use of the Bulletins of the Druggists' Research Bureau in Teaching," Paul C. Olsen and others.

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION.

Officers.—*President,* John G. Searle, Chicago; *First Vice-President,* S. W. Fraser, New York City; *Second Vice-President,* L. D. Humphreys, Saratoga Springs; *Secretary,* Clarence W. Warner, Newark; *Treasurer,* Frank A. Mallett, Des Moines; *Counsel,* Charles Wesley Dunn, 580 Fifth Ave., New York City.

ENTERTAINMENT PROGRAM, 79TH ANNUAL CONVENTION, AMERICAN PHARMACEUTICAL ASSOCIATION.

MIAMI, FLORIDA.

JULY 27TH–AUGUST 1ST, 1931—HEADQUARTERS, COLUMBUS HOTEL.

G. H. GROMMET, Local Secretary.

The following has been submitted by the Local Committee:

Sunday, July 26th.

1:00 to 5:00 P.M. Registration, Columbus Hotel Lobby.

8:00 to 10:00 P.M. Musical Concert and Reception, Alcazar Hotel Roof Garden.

Monday, July 27th.

Registration all day, Columbus Hotel lobby.

9:00 A.M. Ladies Auxiliary Florida State Pharmaceutical Association will meet at Alcazar Hotel Roof Garden.

2:00 P.M. Reception and Bridge for Mrs. H. C. Christensen and visiting ladies at Alcazar Hotel Roof Garden.

8:30 P.M. Traveling Men's Auxiliary of the Florida State Pharmaceutical Association will sponsor their annual entertainment at the Alcazar Hotel Roof Garden.

10:00 A.M. and 2:00 P.M. each day. Sightseeing Boat Trips on Glass Bottom Boats Will Leave Pier 5, City Docks, for the Beautiful Coral Reefs and Marine Gardens.

NOTE: Through the glass bottoms of these boats you are able to see the wonderful marine growth of the Tropics, the sponges, Irish moss, sea urchins and the most gorgeously colored fish, rivaling the artist's palette.

10:00 A.M. and 2:00 P.M. each day. Everglades Boats will sail from Pier 5, City Docks, up the Miami River to the Everglades and Indian Villages and Alligator Farms.

NOTE: These boats will sail up the Miami River, the native home of the alligators, and you will see the tropical vegetation of palms and plants which hold forth nowhere except Southern Florida; the Seminole Indians as they have lived for the past centuries in their thatched villages and the experimental farms in the vast Everglades, which, if drained and cultivated, would feed the world.

Coupons—for these trips are in the Entertainment Coupon Books, and may be used any day desired.

Tuesday, July 28th.

10:00 A.M. Automobile Sightseeing Trip or Shopping Tour as desired.

10:00 A.M. Boat trips as explained above.

2:00 to 4:00 P.M. Musical Program and Reception at the Alcazar Hotel Roof Garden.

7:00 P.M. *Annual Banquet* of the AMERICAN PHARMACEUTICAL ASSOCIATION to be held at the Coral Gables Golf and Country Club, followed by a dance and entertainment in the Patio of the Spanish Garden till 2:00 A.M.

NOTE: Automobiles will start loading at 6:15 P.M. Cars will be parked in front of the Columbus, McAllister and Alcazar Hotels. Those who are stopping at other hotels are requested to use the cars in front of the Columbus. All cars will be on Biscayne Boulevard in front of each hotel, and will

return you to your hotel at any time after the banquet.

Wednesday, July 29th.

11:00 to 1:00 P.M. Motorcade to Miami Beach, Roney Plaza Hotel and Roman Pools Casino.

12:00 M. to 1:00 P.M. Gay Senoritas—Spanish Troubadours—Graceful Dancers from Mexico—Negro Quartette—Jubilee Singers.

1:00 to 3:00 P.M. Dancing. Music by Roman Pools Orchestra.

3:00 to 4:30 P.M. Professional and Amateur Fancy Diving and Swimming Races. (Prizes and cups will be awarded.)

4:30 P.M. Joe Coppinger in alligator wrestling exhibition. This program will be continuous, colorful, and entertaining. Bathing suits will be furnished free. Bath house facilities will be at your disposal. Bathing may be enjoyed all day in the famous Roman pools or in the surf.

NOTE: Automobiles will start loading at 10:30 A.M. Cars will be parked in front of the Columbus, McAllister and Alcazar Hotels. Other instructions as for Tuesday.

8:00 P.M. Night in Dixie—Bay Front Park. Music by Caesar La Monaca's Miami Concert Band.

Program.

1. Overture to "William Tell"—Rossini.
2. Adolph Seerth in Community Singing.
3. Grand American Fantasy "Tone Pictures of North and South"—Bendix.
4. Soprano Solo "My Old Kentucky Home"—Ruby Showers Baker.
5. Xylophone Solo Overture "Morning, Noon and Night in Vienna"—Suppe.
6. Shrine Chanters.
7. Novelty Act.
8. Descriptive Fantasy "The Evolution of Dixie." Lake Street dance on Biscayne Boulevard will follow immediately after concert.

Thursday, July 30th.

10:00 A.M. Boat Trips as outlined above.

2:00 P.M. Boat Trips as outlined above.

12:30 P.M. Motorcade — Miami — Miami Beach—Coconut Grove—Coral Cables, visiting orange and grape fruit groves. Stopping at Musa Isle Indian Village and Pan American Airport.

NOTE: Automobiles will start loading at 12:30 P.M.

8:00 P.M. Theatre Party—Olympia Theatre.

9:00 P.M. Spanish Fiesta, Roney Plaza Gardens. Refreshments, Dancing, Entertainment. Visitors are guests of Dade County Retail Druggists' Association.

Friday, July 31st.

9:00 A.M. Mens' Golf Tournament at Miami Country Club, 36-hole medal play. Bring your handicaps from your home club.

10:00 A.M. Glass Bottom and Miami River Boat Trips as outlined above.

1:00 P.M. Motorcade to Venetian Pools in Coral Cables—Water Sports—Refreshments—Entertainment.

8:00 P.M. Theatre Party for Ladies.

NOTE: Automobiles will start loading at 1:00 P.M.

BOOK NOTICES AND REVIEWS.

Die Glykoside. By Dr. J. J. L. VAN RIJN, edited by Dr. Hugo Dieterle. Berlin, Gebrüder Borntraeger, 1931. Price: paper cover, 40 marks; bound, 50 marks.

While there is no scarcity of adequate and interesting reference books on the alkaloids in medical and chemical literature, the same cannot be said of that group of compounds known as glucosides, the importance of which we are just beginning to appreciate. The present work is a new edition of the famous monograph by van Rijn, compiled by Dr. Hugo Dieterle, director of the Pharmaceutical Institute, University of Frankfort. The first edition of this celebrated work, probably the most comprehensive treatise on glucosides, appeared in 1900. The new edition, published thirty-one years after the first appearance of van Rijn's treatise, will therefore be welcomed by all those interested in this subject. To produce the present volume, comprising 620 pages of text, the original work has been very much expanded and largely rewritten. To begin with, a brief introduction, containing a general description of the glucosides, calls attention to the products of hydrolysis ob-

tained from them, namely, various sugars and aglykon bodies, or substances which are not sugars in their structure or properties. This brief introduction is followed by a detailed description of practically all the glucosides discovered and studied up to the present time. The classification and treatment of these follows the order of plant families, and ninety-three such groups are described in this book. Some of these plant families contain but few and relatively unimportant glucosides; others comprise a large number of members and include substances of profound interest to the chemist, botanist, pharmacist, pharmacologist and physician.

On looking over the pages of this monograph, one is struck by the number of chemical compounds of glucosidal nature, even the names of which are unfamiliar to the average chemist, pharmacist and pharmacologist. It would be interesting to inquire how many readers of the book have ever heard of such substances as oenin, ponticin, rufin, gein, prulaurasin, sophonin, fustin, violanin and many others. While these may be of remote interest to the average pharmacist and pharmacologist, a glance at some of the other compounds treated in this monograph will at once reveal that they are of very great importance in medicine. Under the glucosides, of course, we find treated the active principles of some of our most important purgatives, namely, *aloes*, *Rhamnus purshiana*, scammony, colocynth, elaterium, rheum, bryonia, etc. All that is known at present concerning the chemistry of these substances can be found in the pages before us. Under the *Cruciferae* are treated sinigrin, sinalbin and other sulphur-containing bodies of extreme interest. Among other well-known glucosides may be mentioned phloridzin, which produces a curious form of glycosuria when administered to animals; esculin, notable for its peculiar brilliant fluorescence in long ultra-violet rays; and saligenin, which, since the discovery by Macht of the local anesthetic properties of benzyl alcohol, has been introduced as a local anesthetic in medicine in place of phenylmethylol because of its free solubility in water. Most important of all, of course, in connection with a pharmaceutical and medical treatise on glucosides, is the treatment of heart drugs, the active principles of which, for the most part, belong to this chemical series. In the present monograph we find complete information as to the chemistry of the strophanthus glucosides, namely, *k*-strophanthin, *h*-strophanthin, *g*-strophanthin and *c*-strophanthin. Naturally, the treatment of the digitalis glucosides occupies a prominent place. Every compound and derivative obtained from the foxglove is described in the chapter dealing with this particular subject. To mention but the names of the various glucosides and their derivatives, we may cite digitalin Nativelle, digitalin Homolle, digitalinum germanicum. digitalinum verum, digitalein, gitalin (pseudodigitoxin), anhydrogitalin, digitonin (Schmiedeberg), digitonin amorphus (Cloetta), digitonin crystalline, digitogenin, digitogenic acid, digitacid, digitoxin, digitoxigenin, digitoxose, digitan, gitin, digin, gitonin, gitogenin, gitoxin, gitoxigenin, digitophyllin, digitaline cristallisée. It is hardly necessary to state that here is to be found the complete chemistry of these compounds, as far as it is known, and the classical work of Windaus especially is presented in full.

Many other subjects of great interest to the pharmacist and physician may be found in this book but need not be discussed in detail in this place. Under the *Rubiaceæ* we find a description of the ipecac glucosides. Under the *Solanaceæ* appears a discussion of a number of well-known medicinal drugs; and under the *Scrophulariaceæ* many curious heart drugs other than the digitalis glucosides are noted.

One of the most useful features of this treatise are the numerous structural formulas which it contains. An exhaustive literature is also conveniently printed, not at the end of the book but in the form of foot-notes on the different pages. The work is completed by two indices: one, a chemical index covering thirteen pages and comprising the names of all the compounds described; the other, a botanical index, referring to the sources of the various glucosides.

The monograph before us meets a long-felt need for a reliable and learned treatise on the glucosides. Every one interested in the subject, who can read German, whether he be chemist, pharmacist, pharmacologist or practising physician, will find this work an invaluable addition to his library. He who is not acquainted with that language had better start to study it or pray that the work may be translated into English.—DAVID I. MACHT.

THE TRANSACTIONS OF THE 79TH MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION ARE NOW HISTORICAL RECORDS.

THE registrations of the 79th annual convention of the AMERICAN PHARMACEUTICAL ASSOCIATION numbered 611; the hospitality of the Floridians was 100, and presents the only criticism of the meeting—there were too many entertainments—there was much in Florida that the majority of the visitors had never seen before and, hence, the members could hardly be blamed for taking in the sights of a most interesting section of the country, and to that extent cut down the attendance of the sections. The annual banquet was a dream—out in the open at Coral Gables Golf and Country Club; under the palms and the influence of the moon in its fullness the guests were charmed by the beauties of a night in Florida; about 700 or more attended the feast. The days were pleasant and the nights comfortable; most of the guests, by reading weather reports, learned that Miami temperature was somewhat lower than at home, and the breezes were delightful.

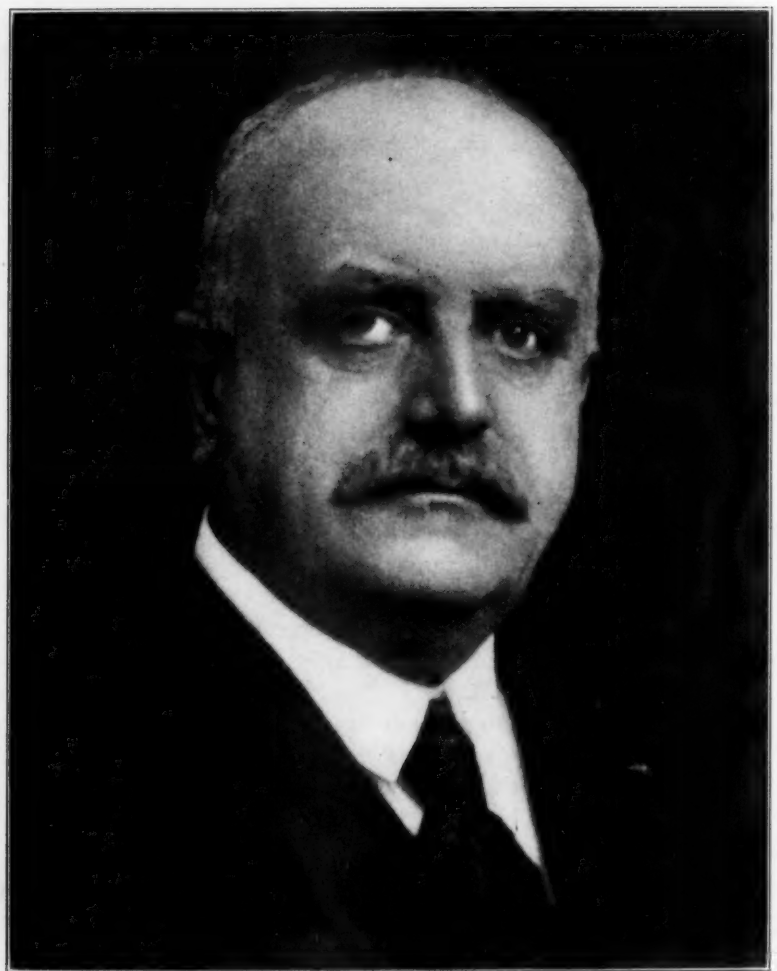
Secretary E. F. Kelly was honored by an invitation of the Olympia Men's Bible Class to speak on Sunday preceding the opening sessions. His remarks dealt with pharmacy's part in public health matters.

The Plant Science Seminar was held during the preceding week, and the Research Conference, the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy held representative meetings on the days preceding the opening of the General Sessions, the House of Delegates and the Sections. The programs were well up to the average and will be reported in due course. Several of the addresses and reports were of exceptional importance; among them may be mentioned those relating to the Pharmacy Corps, the surveys, the National Formulary, Fairchild Scholarship and professional pharmacy.

The local publicity was exceptionally good, comprising about 80 columns of print, 40 single photos and a dozen or more group illustrations. Dr. Robert P. Fischelis could not attend; notwithstanding that, however, he issued a dozen or more bulletins which were well received by the press. We are indebted to the Miami press and the Local Publicity Committee for the service rendered.

The 79th annual meeting of the ASSOCIATION has been a success; the 80th meeting will be held in Toronto.

For Address by Dr. J. J. Durrett, see page 856.



DR. J. J. HOFMAN.